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NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

MARITIME TERRORISM AND THE SMALL BOAT THREAT TO THE UNITED STATES: A PROPOSED RESPONSE

by

Brian Patrick Hill

March 2009

Thesis Advisor:	Robert Simeral
Second Reader:	James Wirtz

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This thesis examines the history and current trends of international maritime terrorism to show that terrorists may soon determine that small boat attacks may be the most cost-effective and successful terrorism strategy. This review determined that increasingly successful worldwide piracy attacks and the effective use of detection-evading drug vessels, may increase the risk of a terrorist attack in United States' waters. These reviews and lessons learned from other nations' successful responses to the maritime threat, in coordination with the goals outlined in the DHS Small Vessel Security Strategy, led to this author's recommendations that (1) the local U.S. maritime community members must be better encouraged by Coast Guard members to become involved in observing and reporting suspicious activities; (2) the Coast Guard and other local law enforcement agencies must investigate and prioritize those areas that might be used as a staging area for a small boat attack and increase their presence activities in those locations; (3) the use of up-to-date technology must be a part of any small boat terrorist deterrence plan; and (4) the U.S. must be prepared with a plan to respond to a successful small boat attack, including possible increased regulations and restrictions on the maritime community.

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MARITIME TERRORISM AND THE SMALL BOAT ATTACK THREAT TO THE UNITED STATES: A PROPOSED RESPONSE

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requirements for the degree of

**MASTER OF ARTS IN SECURITY STUDIES
(HOMELAND SECURITY AND DEFENSE)**

from the

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ABSTRACT

This thesis examines the history and current trends of international maritime terrorism to show that terrorists may soon determine that small boat attacks may be the most cost-effective and successful terrorism strategy. This review determined that increasingly successful worldwide piracy attacks and the effective use of detection-evading drug vessels, may increase the risk of a terrorist attack in United States' waters. These reviews and lessons learned from other nations' successful responses to the maritime threat, in coordination with the goals outlined in the DHS Small Vessel Security Strategy, led to this author's recommendations that (1) the local U.S. maritime community members must be better encouraged by Coast Guard members to become involved in observing and reporting suspicious activities; (2) the Coast Guard and other local law enforcement agencies must investigate and prioritize those areas that might be used as a staging area for a small boat attack and increase their presence activities in those locations; (3) the use of up-to-date technology must be a part of any small boat terrorist deterrence plan; and (4) the U.S. must be prepared with a plan to respond to a successful small boat attack, including possible increased regulations and restrictions on the maritime community.

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TABLE OF CONTENTS

I. INTRODUCTION....1
A. THREAT VERSUS VULNERABILITY TO THE SMALL BOAT ATTACK....5
B. RESEARCH QUESTION AND METHODOLOGY....12
C. LITERATURE REVIEW....12
1. Near/In Shore HUMINT Gathering Issues....14
2. MDA Policies/Programs....16
3. Literature on the Small Boat Attack Threat....17
4. Literature on the Neighborhood Watch and Similar Programs....19
5. Literature on Anti-WMD and Small Boat Detection Technologies....20
D. THESIS OUTLINE/PROPOSED RECOMMENDATIONS....21

II. BACKGROUND: INTERNATIONAL MARITIME TERRORISM....23

III. OTHER NATIONAL/INTERNATIONAL RESPONSES TO MARITIME TERROR....31
A. ISRAEL....31
B. SINGAPORE/SOUTHEAST ASIA....33
C. FRANCE....35
D. SRI LANKA....36
E. NATO....38
F. INTERNATIONAL LESSONS LEARNED....39

IV. RISK-BASED DECISION MAKING RELATING TO MARITIME TERRORISM....41
A. THE REALITY OF THE THREAT TO THE UNITED STATES....45

V. THE WAR ON DRUGS AND ITS RELATIONSHIP TO THE SMALL BOAT TERROR THREAT....49
A. DRUGS AND THE FINANCING OF TERROR GROUPS....51
B. THE WAR ON DRUGS, THE WAR ON TERROR, AND SMALL BOATS....53

VI. PIRACY: PREVIEW OF TERRORIST ACTIVITIES OF THE FUTURE?....59

VII. CURRENT U.S. INITIATIVES RELATING TO HUMAN INTELLIGENCE (HUMINT) GATHERING EFFORTS AGAINST THE SMALL BOAT THREAT IN U.S. WATERS....69
A. AMERICA'S WATERWAY WATCH....69
B. THE NEIGHBORHOOD WATCH PROGRAM....72
C. OTHER POSSIBLE RECOMMENDATIONS/OPTIONS TO AID IN AWARENESS AND MDA....74

VIII. A PROPOSED NEW NATIONAL ARCHITECTURE FOR TACTICS AND PROCEDURES TO ADDRESS THE U.S. SMALL BOAT TERROR THREAT....79

IX. USE OF TECHNOLOGY AGAINST THE SMALL BOAT TERROR THREAT....87

A. SENSORS TO DETECT THE PRESENCE OF RADIOLOGICAL MATERIAL ON SMALL BOATS....88

B. USE OF FORWARD LOOKING INFRARED RADAR (MARFLIR) TO LOCATE PERSONS HIDDEN IN SMALL BOATS....92

C. AIS/VESSEL TRACKING TECHNOLOGY....94

D. VESSEL "SELP-HELP" TECHNOLOGIES....95

E. FUTURE POSSIBLE TECHNOLOGIES....97

F. TECHNOLOGY CONCLUSION....99

X. THE REASON FOR SMALL BOAT ATTACK PREVENTION ACTIVITIES: THE POSSIBLE NEGATIVE GOVERNMENTAL REACTIONS THAT COULD FOLLOW THE FIRST SUCCESSFUL SMALL BOAT ATTACK IN U.S. WATERS....101

XI. CONCLUSION....109

LIST OF REFERENCES....111

INITIAL DISTRIBUTION LIST....125

LIST OF FIGURES

Figure 1. Damage to USS Cole Following Small Boat Attack 6
Figure 2. Additional View of Damage to USS Cole 7
Figure 3. Aftermath of Attack on M/V Limburg 7
Figure 4. As The Cost of Countermeasures Rise, The Alleviated Risk Decreases 42
Figure 5. Vessel Used in Smuggling Attempt 44
Figure 6. An Example of a Semi-Submersible Submarine 55
Figure 7. A Semi-Submersible Submarine Moored between Two Boats 56
Figure 8. A Semi-Submersible Submarine on Shore 56
Figure 9. A Semi-Submersible Submarine at Sea 57
Figure 10. U.S. Navy Photo of the Pirates Who Seized the M/V Faina 61
Figure 11. Actual and Attempted Acts of Piracy, 1994-2006 63
Figure 12. Location of Actual and Attempted Acts of Piracy, 1994-2005 64
Figure 13. Components of the SAPOO Matrix 84
Figure 14. Maritime Zones off Israel's Coast. Zones K and M are for Palestinian Fishermen; Zone L is for Israel Navy and Permitted Vessels Only. 106
Figure 15. Shipping Corridors for Large Vessels Approaching and Departing Israel. Strict Lane Compliance is Required. 107

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This thesis is dedicated to the memory of Coast Guard Petty Officer Nathan Bruckenthal, killed in Operation Iraqi Freedom by a small boat suicide attack in 2004. We in the U.S. Coast Guard are dedicated to trying to prevent a similar of attack from being successful in U.S. waters. I also want to thank the many Coast Guard officers that have permitted me to pursue this degree despite the hardship of my many absences for the in-residence periods. I have attempted to use this thesis as a sounding board for possible future Coast Guard actions solely in a academic way, and state unequivocally that the positions taken in this thesis are mine alone, are an academic adventure only, and in no way should they be considered to be endorsed by the United States Coast Guard in any way.

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I. INTRODUCTION

After the tragic and surprising events of 9/11, the United States became aware of the almost endless possible means of attacks against it. Maritime security, after airline security, quickly became one of the nation's greatest areas of concern,[1] as commercial aircraft and ships were no longer seen by the public as "benign tools for commerce and leisure, but as potential weapons."[2] The vulnerabilities of the United States in the maritime realm are obvious: while there are 5,525 miles of border with Canada and 1,989 miles of border with Mexico, there are approximately 95,000 miles of U.S. shoreline and 3.4 million squares miles in the Exclusive Economic Zone of the U.S.[3]

The U.S. maritime industry and economy is surely a prime target of al-Qa'ida, given that organization's "modus operandi of continuous attempts to strike at the heart of the American economy and symbolic targets, just as it did in the September 11 attacks against the World Trade Center."[4] The maritime industry is a huge contributor to the nation's economy, as over 95% of the U.S.'s imports and exports are sent via ships from the U.S.'s more than 361 ports,[5] and any shut down of the nation's port would have a ripple effect throughout the economy. For example, a port security 'war game' in 2002 estimated that a nine day shutdown of all ports in the U.S. after some type of maritime attack would cost approximately $74 billion, while a weapon of mass destruction (WMD) type attack in a port could amount to a cost of $1.3 trillion in lost trade.[6] Maritime

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[1] Martin Murphy, "The Role of 'Public-Private Partnership' in Maritime Awareness and Security," October 16, 2007, www.fletcher.tufts.edu/jebsencenter/pdfs/Murphy_SpecialRelease_11-2007_FINAL.pdf. The commercial shipping industry realized that the 9/11 attacks changed perceptions of terrorism in the U.S. and, in particular, induced feelings of vulnerability that the country had not felt previously in its history."

[2] Ibid.

[3] Thomas Ridge, Secretary, Department of Homeland Security, Statement before the Select Committee on Homeland Security, U.S. House of Representatives, February 12, 2004, http://www.dhs.gov/xnews/testimony/testimony_0019.shtm.

[4] Joshua Sinai, "Future Trends in Worldwide Maritime Terrorism," *The Quarterly Journal* III, no. 1, (2004): 63.

[5] Ibid.

[6] Mike Buky, "Maritime Terrorism: The Threat from Small Vessels," *Maritime Studies* 157 (2007): 1-11.

terrorism, no matter what the technique or the location of the attack, has the same objective as all terror attacks, i.e., causing mass casualties and/or damaging the economic welfare and security of those opposed by the group staging the attack.

The Coast Guard has described the maritime domain as

> one of the least governed regions left on earth. Many millions of square miles of ocean are a global commons under no nation's jurisdiction . . . much of the ocean is only lightly governed and its maritime borders are generally less restricted and are freely accessible to transit without mechanism for detection and investigation.[7]

In the United States alone, there are over 350 official ports of entry for cargo, and an average of six million containers entering U.S. ports each day.[8]

Recognizing this vulnerability, funding for the U.S. Coast Guard and its maritime security mission quickly and greatly increased after 9/11, and the Homeland Security Department was created with the Coast Guard as one of its main agencies.[9] Within the year, the Coast Guard was named as the lead federal agency in charge of maritime homeland security under the Maritime Transportation Security Act of 2002 (MTSA).[10] MTSA also implemented various security regulations and policies targeting large vessels and port maritime facilities, including mandating that all such vessels to submit a 96-hour advance notice of arrival, applying extra scrutiny to all large foreign flag vessels, and requiring offshore boarding of vessels that rated out as "high interest vessels" under the Coast Guard's High Interest Vessel Targeting Matrix.[11]

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[7] Thad Allen, "New Threats, New Challenges: The Coast Guard's New Strategy," *U.S. Naval Institute Proceedings* (March 2007): 75.

[8] U.S. Department of Transportation Secretary Norman Mineta; testimony before the Subcommittee on Coast Guard and Maritime Transportation, House of Representatives, December 6, 2001, http://testimony.ost.dot.gov/test/pasttest/01test/Mineta11.htm.

[9] *Homeland Security Act of 2002*, Public Law 296, 107th Cong., 2nd sess., (November 25, 2002).

[10] *Maritime Transportation Security Act of 2002*, Public Law 295, 107th Cong., 2nd sess., (November 25, 2002).

[11] Jane A. Bullock, George D. Haddow, and Damon P. Coppola, *Introduction to Homeland Security* (Butterworth-Heinemann Publishers 2006), 220-221.

MTSA and its enforcing regulations also vastly increased security requirements for ship-operating companies and for maritime facilities in U.S. ports.[12] These companies and facilities were required to perform security vulnerability analyses and develop security plans to address those vulnerabilities.[13] MTSA also implemented new required cooperation between port stakeholders by establishing an Area Maritime Security Committee (AMSC) at each major port.[14] MTSA directed each AMSC to complete a vulnerability analysis of its port, and to create an Area Maritime Security Plan (AMSP) to address the identified vulnerabilities, as well as to hold regularly scheduled security exercises.[15] Although the timeline for implementation of the regulations was short, the Coast Guard was uniformly praised for its quick overall successful progress toward the implementation of MSTA requirements.[16] The Coast Guard also became more of an obviously armed force after 9/11, hoping to increase deterrence or confront a maritime terrorist attacker by arming its small boats with machine guns/crew served weapons.[17]

In 2005, the United States published its National Plan to Achieve Maritime Domain Awareness (MDA),[18] wherein it emphasized the need for the United States to be aware of vessels and cargo enroute to port in the United States, so that the vessels, their crew, and their cargo could be screened for possible threats to the United States before being allowed to enter U.S. ports. The director of the Coast Guard's MDA Program Integration Office defined the United State's MDA program as "the effective

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[12] Title 33, Code of Federal Regulations, Parts 104 (vessels) and 105 (facilities), 2006 ed.

[13] Title 33, Code of Federal Regulations, Parts 104 and 105.

[14] Title 33, Code of Federal Regulations, Part 103.300, 2006 ed.

[15] Title 33, Code of Federal Regulations, Parts 103.500 and 103.515, 2006 ed.

[16] Margaret Wrightson, Director, Homeland Security and Justice Issues, "Progress Made in Implementing Maritime Transportation Security Act, but Concerns Remain," Testimony before the Committee on Commerce, Science, and Transportation, U.S. Senate, September 9, 2003, www.gao.gov/cgi-bin/getrpt?GAO-03-1155T.

[17] John Upton, "Coast Guard Has Girded Defense Since 9/11," San Francisco Chronicle, September 11, 2008, http://www.john-upton.com/rss/coastguard.htm.

[18] National Plan to Achieve Maritime Domain Awareness for the National Strategy for Maritime Security, October 2005, http://www.dhs.gov/xprevprot/programs/editorial_0753.shtm.

understanding of anything associated with the global maritime environment that could impact the security, safety, economy or environment of the United States."[19]

In a Letter of Promulgation establishing the Coast Guard Auxiliary's separate MDA program in 2002, Jeffrey High, the Director of the Coast Guard MDA program, wrote that the Coast Guard published its Maritime Strategy for Homeland Security[20] to established key objectives and means to achieve them, in order to mitigate the risks associated with threats to the nation's maritime security and to prevent terrorist attacks. There are three primary components of this strategy: Awareness of threats and vulnerabilities; Prevention and Protection against threats; and Response to potential attacks. The then Director of the Coast Guard's MDA program observed "among these elements the most important is Awareness, because the success of the other two elements clearly depends on the effectiveness of the first . . . the ability to know what is both normal and abnormal . . . is crucial to our Maritime Strategy for Homeland Security."[21]

Despite all the increased maritime security and MDA activities, until release of the Department of Homeland Security's (DHS) Small Vessel Security Strategy in April 2008,[22] little was done to develop better awareness of, or to counter, possible terrorist activities by small boat operators that were already within U.S. territorial waters,[23] even though, terror attack by small boats have been identified as one of the highest threats to the maritime industry at home and aboard.[24] The concerns of the United States Coast

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[19] U.S. Coast Guard Auxiliary Maritime Domain Awareness, December 2004, www.americaswaterwaywatch.org/PDF/MDAwhitepaperv2.0-Feb.%202005.pdf (quoting testimony from Mr. Jeffrey High before the Subcommittee on Coast Guard and Maritime Transportation Committee, U.S. House of Representatives, October 6, 2004).

[20] U.S. Coast Guard Maritime Strategy for Homeland Security, December 2002, www.uscg.mil/news/reportsandbudget/maritime_strategy/USCG/_maritime_strategy.pdf.

[21] Jeffrey High, Appendix B; "Letter of Promulgation," U.S. Coast Guard Auxiliary Maritime Domain Awareness, December 2004, www.americaswaterwaywatch.org/PDF/MDAwhitepaperv2.0-Feb.%202005.pdf.

[22] U.S. Department of Homeland Security, "Small Vessel Security Strategy," April 2008, www.dhs.gov/xlibary/assets/small-vessel-security-strategy.pdf.

[23] President, Proclamation, "Territorial Sea of the United States, Proclamation 5928,," *Federal Register* 54 (January 9, 1989): 777, reprinted at 103 Stat. 2981, 3 C.F.R. 547 (1989).

[24] Christopher Doane and Joseph DiRenzo III, "Small Vessel Security Summit Initiates Constructive Dialogue," *Maritime & Border Security News*, July 25, 2007.

Guard and the maritime industry's regarding the small boat threat, reflect the well-publicized small boat attacks by al-Qa'ida against the USS Cole in October of 2000 (see Figures 1 and 2),[25] the French M/V Limburg in October 2002 (see Figure 3),[26] and the November 26, 2008, terrorist attacks in Mumbai, India, where the terrorists came ashore via small boats.[27]

A. THREAT VERSUS VULNERABILITY TO THE SMALL BOAT ATTACK

The current Commandant of the U.S. Coast Guard, Admiral Thad Allen, emphasized the importance of addressing the small boat threat by stating that "the rippling economic ramifications of a small vessel attack against a high-value target such as a container vessel, cruise ship, or petro-chemical facility elevate the problem from a national level to cause for global concern."[28] He further stated that to mitigate the danger from small boats, federal, state and local law enforcement agencies, including the Coast Guard, need greater MDA, appropriate legal regimes, and partnerships across the public and private sector.[29] This sentiment was echoed by a Maine law enforcement official when he stated "when that oil tanker is coming from the Middle East, we know everything about it before it get here, but when it comes to small boats, nobody knows a lot about them."[30]

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[25] Robert Perl and Ronald O'Rourke, "Terrorist Attack on USS Cole: Background and Issues for Congress," *CRS Report for Congress*, January 30, 2001.

[26] "Strait of Hormuz: Assessing Threats to Energy Security in the Persian Gulf" *The Robert S. Strauss Center for International Security and Law*, 2007, www.hormuz.robertstrausscenter.org/boats#relevant. "In October 2002, a suicide small boat attacked the M/V *Limburg*, a French-flagged **VLCC** supertanker, off of the port of Ash Shihr, southeast of Sana'a, Yemen. The detonation of the suicide boat, which analysts estimate was a fifteen-foot fiberglass boat, blew a 36- by 26-foot hole through both hulls of the double-hulled tanker, resulting in an intense fire and the eventual loss of over 50,000 barrels of oil."

[27] Spencer S. Hsu, "Chertoff Urges Tighter Security: Citing Mumbai, He Talks of Coastal Measures and Other Moves," *Washington Post*, December 4, 2008.

[28] Thad Allen, "Friend or Foe? Tough to Tell," U.S. Naval Institute, *Proceedings* 134, 1 (October 2008).

[29] Ibid.

[30] "Homeland Security to Unveil Plan to Guard against Small Boat Attacks," *Associated Press*, April 27, 2008, quoting John Fetterman, Chief of Maine's Marine Patrol, http://www.foxnews.com/story/0,2933,352790,00.html.

However, despite the frequent use of the word "threat" by many parties when addressing the possibility of the small boat attack, there is little direct intelligence that a small boat attack is imminent in U.S. waters. According to an April 23, 2008, intelligence assessment obtained by The Associated Press, while the use of a small boat as a weapon is likely to remain al-Qa'ida's weapon of choice and main threat in the maritime environment given its ease in arming and deploying, low cost, and record of success overseas. "There is no intelligence right now that there's a credible risk" of this type of attack in U.S. waters, Admiral Allen says. "But the vulnerability is there."[31]

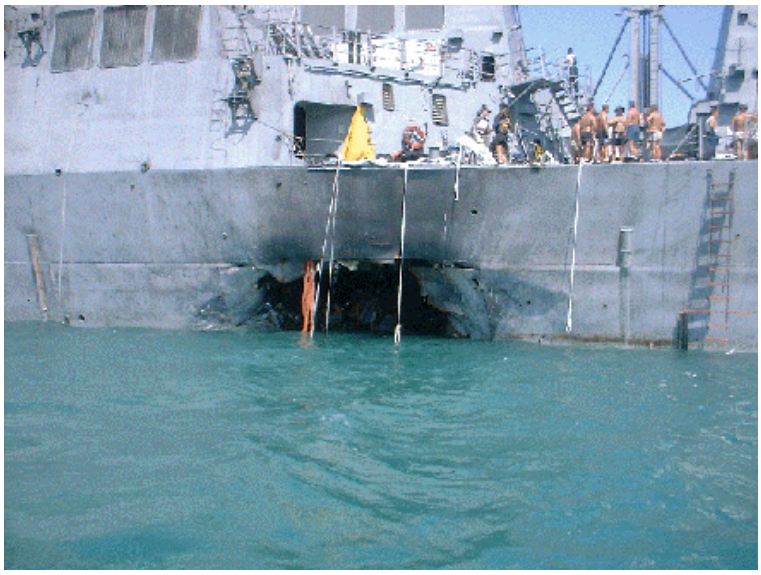

Figure 1. Damage to USS Cole Following Small Boat Attack[32]

[31] Mike Fornes, "Boaters Asked to Watch for Terror Threats," *Cheboygan Tribune*, May 1, 2008, http://webapps.mlca.uscg.mil/LantareaNews/PrintVersion.cfm?NewsID=28868.

[32] Strauss, "Straits of Hormuz."

Figure 2. Additional View of Damage to USS Cole[33]

Figure 3. Aftermath of Attack on M/V Limburg[34]

[33] MSNBC Media Stock Photo, http://msnbcmedia3.msn.com/j/msnbc/Components/Photos/070314/070314_USS_cole_hlarge_1p.hlarge.jpg.

[34] Strauss, "Strait of Hormuz."

The possible threats and vulnerabilities posed by small boat attack is personal to all Coastguardsmen, not only because of daily interaction with the boating public, but also because a small boat loaded with explosives killed a Coastguardsman off the coast of Iraq in April 2004. Petty Officer Nathan Bruckenthal was on a patrol boat approaching a small Middle-Eastern doja-type vessel, when its crew deliberately detonated the cargo of explosives meant to destroy an oil terminal. Petty Officer Bruckenthal died in the attack, making him the first Coastguardsman killed in combat since the Vietnam War.[35]

Analysts believe that attacks by small boats are the most likely means of maritime attack against the U.S. because they "satisfy the overwhelming terrorist requirement for simplicity."[36] Other experts have begun to suggest that, as the world becomes better prepared for terrorist attacks on land, "threat displacement" effects could occur, resulting in an overall increased amount of maritime terrorism over the next few years.[37] Admiral Allen is also reported as stating, after reviewing a 2006 threat assessment, that there is a significant threat posed by vessel-borne improvised explosive devices, and that the vulnerability to small boat attack "stood out" in the assessment.[38] Similarly, in October 2007, Homeland Security Secretary Michael Chertoff said that he had ordered agency leaders to 'raise the [nation's] protection level with respect to small boats."[39] After the 2008 Mumbai terror attacks, Secretary Chertoff said "The November 26 terrorist attacks on Mumbai underscore the need for U.S. authorities to counter the security threat posed by small boats, strengthen the Coast Guard, and keep the Federal Emergency Management Agency within the Department of Homeland Security."[40]

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[35] Department of Defense News Release No. 370-04, April 26, 2004, http://www.arlingtoncemetery.net/nbbruckenthal.htm.

[36] Paul W. Parfomak and John Frittelli, "Maritime Security: Potential Terrorist Attacks and Protection Priorities," *CRS Report for Congress*, January 9, 2007.

[37] Silvia Ciotti Galletti, "Old and New Threats: Piracy and Maritime Terrorism," *Eurocrime*, 2007, www.southchinasea.org/docs/Galletti-Piracy,%20Old%20and%20New%20Threats.pdf.

[38] Ibid.

[39] Thomas Frank, "New Terror Threat? Small Boats," *USA Today*, October 31, 2007.

[40] Spencer S. Hsu, "Chertoff Urges Tighter Security: Citing Mumbai, He Talks of Coastal Measures and Other Moves," *Washington Post*, December 4, 2008." Terrorists apparently approached the coastal Indian city in a stolen fishing boat and rubber dinghies.

It is important to note that the small boat threat involves more than just a vessel loaded with explosives ramming itself into a large vessel or facility. Small boats could also be used to carry terrorists across the U.S.'s maritime border as were the Islamic terrorists that attacked Mumbai.[41] Small boats could also be used as platforms for terrorists using shoulder-fired "stinger-type" weapons against other ships or at commercial aircraft passing overhead.[42] Significantly, many large airports are adjacent to large bodies of water with easy close access to boaters, including Boston, New York City, Washington, Los Angeles, San Francisco and Oakland International Airports in California.

Furthermore, al-Qa'ida has considered using sea mines to hinder traffic in vessel chokepoints,[43] and in 2004, the Abu Sayyaf terror group in the Philippines placed a bomb on a passenger ferry that ultimately resulted in over 100 deaths and the capsized the vessel.[44] Finally, important critical infrastructures, including numerous chemical and petroleum processing plants, also lie along U.S. shores and in U.S. ports, providing easy access for small boat terrorists.[45]

The U.S. Coast Guard, as the lead federal agency for maritime homeland security, is tasked with conducting operations in support of the nation's Ports Waterways and Coastal Security (PWCS) mission as outlined in the Coast Guard Law Enforcement Manual. PWCS refers to [maritime] anti-terrorism and counter-terrorism activities, including support to Military Outloads (MOLs). The Coast Guard's PWCS program is

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[41] Hsu, "Chertoff Urges Tighter Security: Citing Mumbai, He Talks of Coastal Measures and Other Moves."

[42] John Kifner, "Missiles are Called Threat to Civil Aviation," *New York Times*, November 4, 2007.

[43] Akiva Lorenz, "Al-Qa'ida's Maritime Threat," *International Institute for Counterterrorism*, April 15, 2007, http://www.maritimeterrorism.com/2007/04/15/al-qaeda%E2%80%99s-maritime-threat.

[44] Catherine Zara Raymond, "How Real is the Threat from Maritime Terrorism?" *Power and Interest News Report*, December 12, 2005, www.pinr.com/report.php?ac=view_report&report_id=410&language_id=1.

[45] Department of Homeland Security, "National Infrastructure Protection Plan," 2006, 1, www.dhs.gov/nipp. "The overarching goal of the NIPP is to build a safer, more secure, and more resilient America by enhancing protection of the Nation's critical infrastructures/key resources (CI/KR) to prevent, deter, neutralize, or mitigate the effects of deliberate efforts of terrorists to destroy, incapacitate, or exploit them; and to strengthen national preparedness, timely response and rapid recovery in the event of an attack, natural disaster or other emergency."

responsible for protecting the U. S. maritime domain and maritime transportation system - by preventing terrorist attacks, sabotage, espionage, or subversive acts and responding to and aiding in the recovery from attacks that might occur.[46]

An important part of this mission is to protect the maritime border from incursions by terrorists via maritime means. The threat of the U.S. maritime border being crossed by terrorists and criminals was outlined in 2001 by Adolfo Aguilar Zinser, a former Mexican national security advisor and ambassador to the United Nations, when he warned the United States that Spanish and Islamic terrorist groups were using Mexico as a refuge.[47] General James T. Hill, the former commander of the U.S. Southern Command, stated that the U.S. faces a growing risk from terrorists groups relocating to Latin America, and specifically warned that Hezbollah and groups like it had established bases in Latin America; these concerns were exacerbated by Venezuela's support to radical Islamic groups.[48]

The DHS Small Vessel Security Strategy (SVSS) noted that one of the ways the United States could counter this already clearly-identified threat was to become more aware of what is and is not normal activity in the local maritime realm. As Director High noted above, "awareness is the most important part of the nations' maritime strategy." Who would be better to know what is normal and what is not normal in the local maritime environment than the operators and passengers onboard the more than 17 million small vessels that operate on U.S. waterways on a regular basis?

America's boaters, and international boaters arriving across our maritime borders with Mexico and Canada and the Caribbean, operate along all the coastlines of the United States and are often the only eyes on the waters for miles. By contrast, U.S. Coast Guard assets are primarily concentrated in the vicinity of large ports, and the Coast Guard's primary search and rescue and law enforcement assets - the Search and Rescue small boat

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[46] Program Assessment, Coast Guard: Ports Waterways and Coastal Security, 2006, http://www.etrunk.kiev.ua/omb/expectmore/summary/10003635.2006.html.

[47] Bert Tussing, "New Requirements for a New Challenge: The Military's Role in Border Security," *Homeland Security Affairs* IV, no. 3 (2008), http://www.hsaj.org/?article=4.3.4.

[48] Ibid.

stations - are only scattered along the coasts, sometimes as far as 100 miles apart.[49] This configuration means there are significant areas of coastline that are only regularly seen by the boating public and local law enforcement agency vessels. Therefore, the boat operators, the boating public, local cities and state, federal, and tribal agencies along the coasts must be a part of any truly successful anti-small boat threat MDA awareness program, as

> The Coast Guard's leadership role in addressing current and emerging transnational maritime security threats will require seamless C4ISR [command, control, communications, computers, intelligence, surveillance and reconnaissance] connectivity no only with its own operating forces, but with the myriad of governmental agencies and nations allied with the United States in confronting those threats.[50]

The above-identified small boat threat then raises the following questions: how are these millions of persons, the commercial industries that support them, and other federal, state and local agencies incorporated into the Coast Guards' and the nation's MDA program? What activities, tactics, technologies, etc., can the Coast Guard and its partner agencies take to better address this threat with their limited assets? The National Plan to Achieve MDA attempts to address this issue of using civilians in MDA by calling for programs to be developed to "encourage members of the maritime industry and recreational boating community to report suspicious activities,"[51] but little in the way of actual results followed.

The SVSS does lay out four specific goals to enhance security against the small boat threat: (1) getting the boating public more involved in the nation's MDA programs, including increasing awareness of the Coast Guard's America's Waterway Watch (AWW) program; (2) requiring the use of risk-based decision making to target the highest risk small boats; (3) leveraging technology to increase surveillance/detection

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[49] For example, there are over 200 miles between the Coast Guard Station in Bodega Bay, CA and the Station Humboldt, CA, www.mapquest.com.

[50] Bruce Stubbs and Scott C. Truver, *America's Coast Guard: Safeguarding U.S. Maritime Safety and Security in the 21st Century* (Washington, DC: United States Coast Guard, 1999), 107.

[51] DHS, "Plan to Achieve Maritime Domain Awareness" Appendix B, 5.

along the maritime border and high risk areas; and (4) enhancing the coordination and cooperation among federal, state, local and tribal agencies, and the private sector, and increasing international coordination with other maritime nations.[52]

B. RESEARCH QUESTION AND METHODOLOGY

How can the Coast Guard and the DHS better use the members of the United States' maritime community as part of the nation's MDA program to detect and deter the small boat attack before it begins, and how can the Coast Guard itself and other local law enforcement agencies implement new tactics, procedures and the use of new technology to lessen the chance of a successful small boat terror attack in U.S. waters? This thesis will address possible ways to approach these questions and implement the goals of the Small Vessel Security Strategy by conducting a review of the current state of worldwide maritime terrorism, piracy, and drug smuggling, and then conducting an analysis of the threats posed by these small boat-centric regimes to recommend actions and changes in maritime security policy. These recommended changes to policy include increasing the human intelligence (HUMINT) gathered from the nation's maritime community/boating public through increased outreach; proposing specific actions to be taken by the Coast Guard and other agencies to detect/deter a small boat attack before it begins by identifying possible staging areas for such attacks and prioritizing those areas for patrols and intelligence gathering based on their risk; identifying those specific technologies already available and under development that may be of use in the overall anti-small boat terror strategy; finally, this thesis will evaluate what actions, regulations, movement restrictions, etc., may become necessary after the first successful attack by small boat terrorists in U.S. territorial waters.

C. LITERATURE REVIEW

The problem of how to protect maritime shipping against the threat posed by small boats already within U.S. territorial waters is only beginning to be addressed by

[52] DHS, "Small Vessel Security Strategy."

authors and institutions,[53] although there has been an increasing awareness by everyone in the maritime community, both governmental and non-governmental, of this threat and the possible actions that the Coast Guard and other agencies may take to address it.[54] As it is almost impossible for the Coast Guard and other agencies to monitor the tens of thousands of miles of shorelines, marinas, boat ramps, etc., from which these types of attacks could be launched, the Coast Guard as the lead agency for homeland security has to find a way to incorporate the millions of boaters on the water every day into its MDA program.

Additionally, new technology must also be included in any small boat awareness strategy and vessel/port self-protection program. There are many different technologies available that should be implemented, and the proper placement of monitoring equipment that can sense whether a passing small boat carries WMDs, explosives, chemical agents or other dangerous cargo, has to be a part of this small boat threat awareness program.

Very little research has gone into how to better involve the boating public in watching for suspicious behavior in the inshore maritime area. Several Coast Guard action plans have been developed to address the waterborne IED threat, but the vast majority of the proposed plans deal with increased intelligence activities on the national scale, on security cameras, and increased Coast Guard patrols around marinas, boat ramps, etc. While the Coast Guard has implement the America's Waterway Watch program and promoted the SVSS with regional summits, there has been little discussion about how to better include the boating public in small boat anti-IED activities, other than advising them of the above programs, and what other specific actions, tactics, and training the Coast Guard itself or other government agencies can take to lessen the threat.

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[53] Doane and DiRenzo, "Small Vessel Security Summit." See also, "DHS sees IEDs as Growing Domestic Threat," *HSDailywire.com*, October 22, 2007, www.hsdailywire.com/single.php?id=4876.

[54] James Jay Carafano, "Small Boats, Big Worries: Thwarting Terrorist Attacks from the Sea," *The Heritage Foundation*, June 11, 2007, www.heritage.org/research/homelanddefense/bg2041.cfm.

In addition to efforts such as the small boat summits noted above and several recent statements by Admiral Allen,[55] the Coast Guard has begun discussing how to specifically address this threat, including possibly changing some policies to address the small boat threat because of its increased risk.[56] Several authors have discussed improving the Coast Guard MDA through improving intelligence-gathering efforts, but again, the authors have mainly ignored the possible Human Intelligence (HUMINT) that could be gathered if the boating public was widely included.

The major subcategories of the literature in this area include Coast Guard policies relating to improving in-shore HUMINT gathering and their strengths and weaknesses; Coast Guard policies relating to the small boat threat; general Coast Guard Maritime Domain Awareness (MDA) programs; U.S. Navy/Marine policies on small boat threats and force protection; literature on previous waterborne threats; and literature on types of WMD that can be carried into the United States via maritime means, and the technology to detect the various threats.

1. Near/In Shore HUMINT Gathering Issues

In R.B. Watt's Naval Postgraduate School (NPS) thesis entitled "Implementing Maritime Domain Awareness,"[57] the author stated that MDA is really nothing more than intelligence. However, he mainly addressed how increased MDA intelligence could support members of the Coast Guard and Navy by fusing their interagency data at the highest agency level. Watt offered little discussion related to improving MDA intelligence gathering in the near shore environment. Similarly, Christopher McDaniel and Matthew Tardy's June 2005 NPS thesis discussed the improvement of MDA, but

[55] Admiral Thad Allen, "State of the Coast Guard" speech, February 13, 2007, http://www.uscg.mil/comdt/speeches/socg2007.asp. "We're beginning to discuss what we need to do to address regimes regarding recreational vessels, uninspected tug and barges, and small passenger vessels."

[56] Jeffrey Wheeler, "Risk-Based Mission Activity Analysis Process; *Coast Guard Proceedings* 64, no. 3 (2007): 28.

[57] R.B. Watts, "Implementing Domain Awareness," Naval Postgraduate School, March 2006.

again concentrated on how to better track and board large vessels that were coming to the United States, rather than on the vessels that were already present in U.S. territorial waters.[58]

Another NPS thesis by Michael Billeaudeaux dealt with how the United States has involved the local maritime community in assisting the Coast Guard in its activities,[59] but it focused on non-boating members of the maritime community. This thesis concentrated on how the Citizens Action Network (CAN), which operates along the shores in the states of Oregon and Washington, can help the Coast Guard by offering the assistance of persons living on shore who have a view of the water. The volunteer members of this program, who have homes or businesses with views of the water, agree to keep an eye out on the water, and to be available to receive calls from the Coast Guard to view and report on a specifically targeted area when asked. While the assistance of persons living in close proximity to the water and acting as spotters can be beneficial to search and rescue/flare sighting-type cases, these spotters cannot see whether a bomb is being assembled at a marina or whether "dry runs" are being attempted. However, incorporating live-aboards or harbor masters at marinas into the CAN program could significantly improve the HUMINT relating to small boat activities. Importantly, the above CAN program is slated to eventually be implemented nationwide.[60]

This small boat threat thesis follows up on the recommendations and actions included in the CAN program by specifically calling for the improvement of boating public participation in MDA/HUMINT activities in U.S. territorial waters, marinas, boat ramps, and other maritime community locations such as dive shops, boat sales/rental companies, etc. The Coast Guard has established the beginnings of such a reporting organization with the implementation of the AWW program,[61] which encourages boaters

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[58] Christopher McDaniel & Matthew Tardy, "Role-Based Control for Coalition Partners in Maritime Domain Awareness," Naval Postgraduate School, June 2005.

[59] Michael Billeaudeaux, "Leveraging Citizens and Cultivating Vigilance for Force Multiplication in the Maritime Domain," Naval Postgraduate School, September 2007.

[60] Billeaudeaux, "Leveraging Citizens and Cultivating Vigilance," 137.

[61] United States Coast Guard, "America's Waterways Watch" Program, 2005, www.americaswaterwaywatch.org.

to report suspicious activities to a central phone number (1-888-24WATCH). This thesis will be to analyze the failures/successes of the AWW program and propose how to make it a real part of the Coast Guard anti-small vessel borne improvised explosive devise (VBIED) program. The shortcomings of the current AWW program are self-evident, as the vast majority of the boaters present at the Coast Guard's national Small Vessel Security Summit did not even know that AWW existed.[62] How can the boating and maritime community report suspicious activity if they are unaware that there is a procedure for doing so?

2. MDA Policies/Programs

The Naval Postgraduate School itself discussed the importance of MDA as part of its participation in the Maritime Domain Protection Resource Group.[63] As part of its project update in 2004, the task force gave a two-part definition of MDA: (1) the timely knowledge of position, identity, intent, and history of every element in any area of interest operating in or influencing the maritime environment, and (2) actionable information pertaining to any threat requiring a response.[64] This broad definition, which includes the activities and movements of all small vessels, is a vast undertaking beyond the scope of the abilities of the Coast Guard in its present form.

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[62] Statement by LCDR Matthew Wadleigh, who attended the conference on behalf of the Coast Guard's Eleventh District. Also, see John Anthony, "Small Boat Threat," *Boat/US Magazine*, May 2007, (wherein he asked how do we address the problem of [small boat] security? How about meetings by the Coast Guard with various boating groups to lay out the problem and develop solutions?")

[63] U.S. Naval Postgraduate School, Maritime Domain Protection Research Group program . http://www.nps.edu/academics/meyerinstitute/MDP/ (The Maritime Domain Protection Research Group - formerly known as the Maritime Domain Protection Task Force - was formed to investigate issues surrounding protection of the United States, its vessels, and citizens from terrorist threats originating in the maritime domain. The goal of the Maritime Domain Protection Research Group (MDP-RG) is to coordinate, research and investigate issues involving the DOD's responsibilities and roles in Homeland Defense. Stakeholders include a variety of agencies and offices throughout the United States and several international allies. The Research Group will explore methods to define, design, and aid the implementation of a national Maritime Domain Protection System to assist in defeating maritime terrorism as early and as far from U.S. borders as possible).

[64] U.S. Naval Postgraduate School, Maritime Domain Awareness System Demonstration program. www.nps.edu/academics/meyerinstitute/MDP/mdp_research_MDA_demo.htm.

3. Literature on the Small Boat Attack Threat

There has been a significant increase in articles and commentaries on the threats posed by small vessels over the last several years, especially since the release of the DHS SVSS in April 2008,[65] which followed input from the maritime community at various regional Small Vessel Security Summits.[66] Dr. James Carafano, a prominent member of the Heritage Foundation, noted the serious concerns about the small boat threat and suggested that there were three possible countermeasures against the small boat attack threat in U.S. waters: (1) identification and accreditation, which involves possible new regulatory regimes for licensing boat operators and craft, and the possible use of transponders on all small craft so their movements can be monitored; (2) improving situational awareness by both involving the boating public in a neighborhood watch-type program reporting suspicious activities, and the use of technologies to provide surveillance and detection of explosive and other materials used by small boat attack terrorists, and (3) controlling access and interdicting threats by limiting areas where boaters could travel and implementing new measures for stopping a small boat threat once it has been identified.[67]

The current Commandant of the U.S. Coast Guard, Admiral Allen, also recently wrote an article in the October 2008 issue of the U.S. Naval Institute's *Proceedings*, wherein he emphasized engaging the maritime community to act as another set of eyes and ears on the water to increase the Coast Guard's MDA, while also stating that small vessel security is "an asymmetric threat – a complex problem with multiple variable and frames of reference. We need a fresh perspective to quantify our vulnerabilities and reduce the risks that small vessels may pose to our maritime security."[68]

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[65] DHS "Small Vessel Security Strategy."

[66] U.S. Department of Homeland Security, "National Small Vessel Security Summit" June 19 and 20, 2008, in Washington, D.C. www.dhs.gov/xprevprot/programs/gc_1175627911698.shtm. The summit resulted in the Report on the DHS National Small Vessel Security Summit www.dhs.gov/xlibrary/assets/small_vessel_NSVSS_Report_HQ_508.pdf and was followed by several regional summits in Long Beach, California, Houston, Texas and other locations.

[67] Carafano, "Small Boats, Big Worries."

[68] Allen, "Friend or Foe?" 18.

There are several articles on the current state of the terrorism threat in the maritime environment, with some concentrating on the small boat threat, including the threats specifically posed by al-Qa'ida.[69] In a recent report in *National Defense Magazine*, Breanne Wagner noted the security gap posed by small boats, including the possible use of small boats to carry in weapons of mass destruction (WMDs) from adjacent countries, to attack shipping as in the USS Cole scenario, and possibly to provide an offshore platform for firing a missile.[70] Admiral Allen also addressed the possible trafficking of WMDs into the United States via small boats, stating that "a small vessel attack can range from a simple improvised explosive device to a weapon of mass destruction. A WMD would have obvious catastrophic implications but even a garage-built bomb or a small-arms attack could force a port to shut down and have long term economic and security consequences."[71]

In the *Power and Interest News Report*,[72] the author states that the best way to stop maritime terrorists is to disrupt their land capabilities that enable them to take to the sea:

> Effective surveillance and intelligence gathering and sharing, will help to prevent the acquisition of weapons and explosives by militant groups intending to carry out attacks in the maritime domain. A large-scale attack on a target at sea requires a considerable amount of planning, training, and technology. The disruption of this process will severely degrade a group's ability to carry out a large scale maritime organization.[73]

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[69] Lorenz, "Al-Qaeda's Maritime Threat." identifying the planning cycle necessary for the accomplishment of a successful small boat terror attack, and the global maritime security weaknesses in this area; See also, Thomas Frank, "New Terror Threat? Small Boats," *USA Today*, October 31, 2007.

[70] Breanne Wagner, "Government Lacks Clear Plans to ID Small Vessels Used as Weapons," *National Defense Magazine*, November 2007, www.nationaldefensemagazine.org/archive/2007/November/Pages/Gov2444.Lacks2444.aspx.

[71] Allen, "Friend or Foe?" 17.

[72] Raymond, "How Real is the Threat."

[73] Ibid.

Such reasoning is the basis for this author's proposal to increase the use of boaters and technology to counter the small boat threat through increased detection efforts, along with the additional patrols and activities outlined under Operation Focused Lens in Chapter VIII.

Among tactics proposed to mitigate the small vessel attack threat are increased restricted areas/security zones around vessels, escorting of all vessels that could be terrorist targets, radar or transponder monitoring of all small vessel movements, and increasing licensing and other regulatory requirements for all small vessel operators.[74]

These four possible measures have not been thoroughly addressed by present literature, although there is much available discussion of the threat itself by numerous authors and publications; they will be some of the main proposals of this thesis.

As noted above, there is little literature pertaining to way to improve the boating public's reporting of suspicious activities. However, Homeland Security Secretary Chertoff did discuss the importance of using the nation's boating public to confront terrorism by telling them "we recognize that you are a very powerful asset, because you are our eyes and ears upon the water. Millions of eyes and ears that give us visibility and situational awareness about potential threats, threats that, by the way, would directly affect your livelihood as well as the welfare of this country."[75]

4. Literature on the Neighborhood Watch and Similar Programs

There is significant literature on the success of the neighborhood watch programs, and this thesis will tailor many of the concepts of these programs to apply to the maritime domain.[76] Specifically, the purpose of neighborhood watch programs is to use citizen

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[74] Buky, "Maritime Terrorism: The Threat from Small Vessels," 7-9.

[75] "Remarks by Homeland Security Secretary Michael Chertoff at the Department of Homeland Security National Small Vessel Security Summit, June 19, 2007, http://www.dhs.gov/xnews/testimony/testimony_1184599844214.shtm.

[76] National Sheriffs' Association, "Celebrating the Success of 35 Years of the Neighborhood Watch," *USAonWatch.org*, October 16, 2007, www.usaonwatch.org/EZine/EZineMainArticle.php?EZineID=20071101.

volunteers to prevent crime in their neighborhoods.[77] Additionally, there have been numerous calls for more involvement in homeland security at the local level. The International Association of Chiefs of Police stated that all terrorism is local, and that if state, tribal and local law enforcement agencies are adequately trained and equipped, they can be an invaluable asset in efforts to identify and apprehend suspected terrorists before they strike.[78]

5. Literature on Anti-WMD and Small Boat Detection Technologies

Literature on the possible technologies that could be used as partners to the increased vigilance and reporting by the boating public is vast and growing. The Navy has developed the Surface Warfare Mission Package, which is a self-contained set of remote sensors and precision attack weapons designed to combat small boat terrorist threats to the fleet.[79] There are also many private industry products that should be evaluated for their use in contravening the small boat attack threat, including the use of buoys to mark off secure areas and small craft intrusion barriers that prevent small boats from gaining close access to targets.[80] The U.S. Navy is also exploring the increased use of simulators to counteract the small boat threat.[81] Even more interesting, the Domestic Nuclear Detection Office (DNDO) and the Coast Guard are experimenting with buoys that have sensors on them that can "sniff" if a passing small vessel has explosives or radiological material on board.[82]

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[77] National Crime Prevention Council, "Strategy: Citizen Volunteers to Prevent Crime," www.ncpc.org/topics/preparedness/strategies/strategy-citizen-volunteers-to-prevent-crime.

[78] Gene Voegtlin, "From Hometown Security to Homeland Security: IACP's Principles for a Locally Designed and Nationally Coordinated Homeland Security Strategy," International Association of Chiefs of Police White Paper, July 27, 2005, http://www.theiacp.org/PublicationsGuides/TopicalIndex/tabid/216/Default.aspx?id=624&v=1.

[79] Naval Sea Command, "SUW Mission Package Attacks Small Boat Threat for LCS," *U.S. Navy.mil*, September 25, 2007, www.news.navy.mil/search/display.asp?story_id=31482.

[80] Whisperwave, "Maritime Homeland Defense & Force Protection Port Security Solutions," www.whisprwave.com/port.htm.

[81] David J. Walton, "Modeling Force Response to Small Boat Attack Against High Value Commercial Ships," *Proceedings of the 2005 Winter Simulation Conference*, www.informs-sim.org/wsc05papers/117.pdf.

[82] U.S. Domestic Nuclear Detection Office, "DHS Announces West Coast Maritime Radiation Detection Project," September 5, 2007, www.dhs.gov/xnews/releases/pr_1189012515699.shtm.

Finally, the possible solution of limiting the free movement of vessels and/or requiring the imposition of transponder-like equipment on board small vessels has been discussed in various legal cases.[83] The requirement for the AIS upon larger vessels that was imposed by the Maritime Transportation Security Act of 2002 and 2004[84] and the resultant freedom of movement and privacy concerns were addressed in several law review articles that will be used in this thesis.[85] The June 2007 National Small Vessel Security Summit also discussed the possible new regulatory requirements for boat operators and the possible use of transponders for small boats;[86] the proposed draft regulations and requirements for the AIS transponders are available on the Coast Guard website.[87]

D. THESIS OUTLINE/PROPOSED RECOMMENDATIONS

This thesis began in Chapter I by discussing the current situation concerning the United States' general response to the overall maritime terrorism threat since 9/11 and the specific threats and vulnerabilities relating to the small boat terror threat in U.S. waters. Chapter II outlines the general international maritime threat, including responses by the United Nations and the International Maritime Organization to those threats, while Chapter III reviews individual national responses to maritime terrorism and the small

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[83] United States Supreme Court, Kent v. Dulles, 357 U.S. 116 (1958). The U.S. Supreme Court stated "The right to travel is a part of the 'liberty' of which the citizen cannot be deprived without due process of law under the Fifth Amendment. If that "liberty" is to be regulated, it must be pursuant to the law-making functions of the Congress. . . . . Freedom of movement across frontiers in either direction, and inside frontiers as well, was a part of our heritage. Travel abroad, like travel within the country, . . . may be as close to the heart of the individual as the choice of what he eats, or wears, or reads. Freedom of movement is basic in our scheme of values."

[84] Title 46 U.S. Code Section 70111(a)(2)(A)), 2006 ed., and Title 33 Code of Federal Regulations, Part 103.300-310, 2006 ed.

[85] "The Red and Green Lights of Maritime Homeland Security" 2004 *U.S. – Mexico Law Journal*, 12 U.S.-Mex. LJ 89, and "Missing the Boat: The Legal and Practical Problems of the Prevention of Maritime Terrorism," 2002 Washington College of Law, *American University Int'l Law Review*, 19 Am. U. Int'l Rev 341, and "The Shifting Public Order of the Oceans: Freedom of Navigation and the Interdiction of Ships at Sea, 2005 *Harvard Int'l Law Journal*, 46 Harv. Int'l L.J. 131; Richard Farrell, "Maritime Terrorism: Focusing on the Probable," *Naval War College Review*, Summer 2007.

[86] Christopher Doane and Joseph DiRenzo III, "Small Vessel Security Summit Initiates Constructive Dialogue" *Maritime & Border Security News*, July 25, 2007.

[87] U.S. Coast Guard Navigation Center, "What is the Automatic Identification System (AIS)? http://www.navcen.uscg.gov/enav/ais/default.htm.

boat threat, and the recommendations and lessons learned that the United States can take from the responses of other nations. Chapter IV emphasizes the need to use risk based decision-making when implementing any maritime and small boat security strategies.

Chapter V discusses the how the United States' war on drugs, specifically its interdiction and presence activities off the Central and South American coasts, should be continued due to its possible impact in preventing new small boat terror threats like self-propelled semi-submersibles used by drug smugglers, from approaching the United States from afar. Chapter VI will review the recent increases in successful international maritime piracy attacks and how this success may embolden terrorists to increase their use of maritime small boats to accomplish their terroristic goals in the future.

Chapter VII recommends changes to the nation's MDA activities by calling for greater inclusion of the boating public as the Coast Guard's eyes and ears on the water to report suspicious activities. Chapter VIII makes specific recommendations for new nationwide tactics and intelligence efforts led by the Coast Guard, with participation by federal/state/local agencies, private citizens and industry, to specifically detect and deter the possible small boat attack before it begins. Chapter IX emphasizes the need to include the most up-to-date technology in any plan to detect/prevent a small boat attack, including reviewing technologies for self help by vessels and future detection technologies in development. Chapter X outlines possible small boat owner repercussions and freedom of movement restrictions that the United States and the Coast Guard may implement after the first successful small boat attack in U.S. waters. Chapter XI concludes by emphasizing the reality of the small boat threat, and how the recommendations in Chapters VII through IX can and should be implemented to lessen the chances of a successful small boat attack in U.S. waters.

II. BACKGROUND: INTERNATIONAL MARITIME TERRORISM

In a report published in the *New York Times* a year after 9/11, the authors discussed a federal report that focused heavily on the vulnerability of America's seaports, asserting that the intensive efforts to improve airport and air cargo security in the wake of the 9/11 attacks overshadowed the potential for attacks through shipping containers, boats and container trucks. Ninety-five percent of the trade from outside North America to the United States moves by sea. A catastrophic attack at one port could shut down American trade and cripple a large portion of the nation's economy, it concludes. The article notes that "If an explosive device was loaded in a container and set off in a port, it would almost automatically raise concern about the integrity of the 21,000 containers that arrive in U.S. ports each day . . . and a three- to four-week closure of U.S. ports would bring the global container industry to its knees."[88]

Although the container threat issue has been a main concern of Congress for the last several years, it is clear that the vulnerability of the United States and other maritime nations does not just come from the container threat.[89] In fact, the threat posed by 21,000+ containers arriving in U.S. ports seems minor when compared to the threat posed by the 17 million+ recreational vessels freely operating in U.S. waters on a daily basis.[90]

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[88] James Dao, "Threats and Reponses, Gaps in Security: Report Finds U.S. Unprepared for Next Terror Attack," *New York Times*, October 25, 2002.

[89] Michael Chertoff, Statement before the National Small Vessel Security Summit, June 19, 2007, http://www.dhs.gov/xnews/testimony/testimony_1184599844214.shtm. "I have to tell you that if all we do is worry about containers, it's as if we're locking the front door and we're kicking the back door wide open. Because there's also a concern that we have that someone might seek to smuggle a weapon of mass destruction into a seaport, not using a container, but using a commercial vessel, including a vessel that is below 300 gross tons."

[90] Ben Iannotta, "17 Million Potential Bombs," *C4ISR Journal*, 3 (2008), www.c4isrjournal.com/story.php?F=3398330.

A vessel itself being used as a weapon was identified as one of the methods that may be used by terrorists in the DHS-FBI joint publication "Potential Terrorist Attack Methods; Joint Special Assessment" dated April 23, 2008.[91] In their description of this threat, the DHS and FBI identified two means of a maritime vessel attack: a vessel loaded with explosives and used as a weapon, and the vessel itself as a weapon (kinetic attack).[92] While these two types of attacks were identified as the two "primary means" of maritime terrorist attack in the DHS-FBI joint assessment, other attack methods have also been identified, including a stand off attack using a rocket propelled grenade type weapon from another nearby vessel or from shore, and internal sabotage, which could cause a vessel to sink in and block a busy ship channel or explode and cause damage to adjacent vessels, the port, or population centers.

As noted above, the threat posed by maritime terrorism is not solely a U.S. interest. Shortly after 9/11, the international community, through the United Nation's International Maritime Organization, convened to determine how the international maritime community of nations could cooperate to address this threat. In November 2001, IMO's 22nd Assembly adopted resolution A.924(22) "Review of Measures and Procedures to Prevent Acts of Terrorism Which Threaten the Security of Passengers and Crews and the Safety of Ships," which called for a thorough review of all existing measures already adopted by IMO to combat acts of violence and crime at sea.[93]

The Assembly agreed to hold a diplomatic conference on maritime security in December 2002 in order to adopt new regulations that might be deemed necessary to enhance ship and port security and prevent shipping from becoming a target of international terrorism, and to significantly boost to the Organization's technical co-operation program to help developing countries address security issues. The International

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[91] Department of Homeland Security and Federal Bureau of Investigation, "Potential Terrorist Attack Methods: Joint Special Assessment," April 23, 2008, http://webapps.mlca.uscg.mil/d5/D5_Intel/documents/Intelligence%20Products%20Page%20Internal%20Links/JHSA%20Potential%20Terrorist%20Attack%20Methods%20Apr%2008.pdf.

[92] DHS/FBI "Potential Terrorist Attack Methods."

[93] International Maritime Organization, "FAQs on ISPS Code and Maritime Security," www.imo.org/Newsroom/mainframe.asp?topic_id=897.

Ship and Port Facility Security Code (ISPS Code) and other security measures were adopted by that Conference later in December 2002, with their entry into force being set for July 1, 2004.[94]

The United States adopted and implemented the requirements of the ISPS Code when it enacted the Maritime Transportation Security Act of 2002,[95] which, among other issues, required that all maritime facilities and vessels create and implement security plans outlining how they would provide security for their facility and/or vessel. These plans would have to be approved by the U.S. Coast Guard. Additionally, MTSA established Area Maritime Security Committees in each major port;[96] these committees would be chaired by the local Coast Guard Captain of the Port, with other maritime stakeholders in the port also being part of the committee. Additionally, MTSA and ISPS required that larger vessels be equipped with Automatic Identification System equipment that would enable countries and other vessels to identify and track these vessels as they moved about the world.[97]

> The stated purpose of the MTSA regulations was identified as being to align requirements of domestic maritime security regulations with the international maritime security standards in the International Convention for Safety of Life at Sea, 1974 (SOLAS Chapter XI-2) and the International Code for the Security of Ships and of Port Facilities, parts A and B, adopted on 12 December 2002; to ensure security arrangements are as compatible as possible for vessels trading internationally; to emphasize cooperation and coordination with local port community stakeholders, based on existing domestic standards as well as established industry security practices; and requires assessments and plans intended for use in implementing security measures at various MARSEC levels.[98]

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[94] IMO, "FAQs on ISPS Code."

[95] Title 46 U.S. Code, Section 171 (Codified from Public Law 295, 107th Cong., 2nd sess., November 25, 2002; with the implementing regulations located at Title 33, Code of Federal Regulations, parts 101-107, 2006 ed.

[96] Title 33, Code of Federal Regulations, part 102, 2006 ed.

[97] Title 46, U.S. Code, Section 171.

[98] United States Coast Guard Auxiliary, "MTSA Overview," http://www.auxmdept.org/main_maritime_transportation_security_act.htm#MTSA_Overview_.

Because the ISPS Code is part of the Safety at Life at Sea (SOLAS) Convention, the 148 countries that are contracting parties to the Convention are mandated to comply with its provisions. Every major maritime country is a party to the ISPS code.[99] However, although the ISPS Code provided mandatory requirements that all maritime countries must follow, each country implemented the ISPS Code based on its own internal lawmaking mechanisms, and countries were free to be more restrictive and to legislate maritime security areas not specifically covered by the ISPS Code.

The differing approaches to maritime security taken by several different countries and organizations may be of educational value to the United States and other countries. Additionally, DHS and the U.S. Coast Guard have recently begun to examine how the U.S. might better address the threats posed to maritime interests by small boat attacks,[100] such as occurred against the USS Cole and the M/V Limburg, and what can be learned from the ways that other countries have addressed the threats posed by small boat attacks in their territorial waters.

Historically, the world's oceans have not been a major venue for terrorist activity. According to the RAND Corporation's terrorism database, maritime terrorist attacks have accounted for only two percent of all incidents since 1969.[101] The reason for their limited use may be that "the sophistication, expense, and training to carry out maritime terrorism necessitates considerable overhead. It requires terrorist organizations to acquire appropriate vessels, mariner skills and, specialist weapons/explosive capabilities."[102]

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[99] International Maritime Organization, "Status of Conventions – By Country," www.imo.org/statusofconventions-bycountry. Note that every major maritime country throughout the world is listed as having adopted the ISPS code.

[100] Report of the Department of Homeland Security's National Small Vessel Security Summit, October 19, 2007, http://www.dhs.gov/xlibrary/assets/small_vessel_NSVSS_Report_HQ_508.pdf. Note: The National Small Boat summit was held in Washington DC on June 19-20, 2007. There were also several follow-on regional small boat summits held throughout the country, including the regional small boat summit held in Long Beach, CA on Saturday May 3, 2008 – which the author attended.

[101] Rand Terrorism Database, http://www.rand.org/ise/projects/terrorismdatabase.

[102] Akiva J. Lorenz, "The Threat of Maritime Terrorism to Israel," *MaritimeTerrorism.com*, September 24, 2007, http://www.maritimeterrorism.com/2007/09/19/the-threat-of-maritime-terrorism-to-israel/.

However, limited the numbers for maritime terrorism may be historically, the economic impact and/or threat to human life that could result from a terrorist act in a port would be significant. For example, should a terrorist attack in the port of Los Angeles/Long Beach cause the port to be shut down even for only a few days, the economic impact would be in the billions of dollars.[103] The economic impact of any disruption in U.S. ports will only increase in the future as the ports continue to grow in size and cargo capacity and as the overall U.S. international trade volume continues to grow.

Additionally, imagine the impact to the U.S. and world cruise line industry should a cruise ship be attacked via a small boat explosive attack. Terrorists could also bring the $30 billion U.S. recreational boating economy to a halt by one small boat attack, or even by simply making a legitimate small boat threat; the U.S. government would probably have no choice but to order all small boats to stay in port while the security issues were evaluated.[104]

Several well known terrorist groups have a maritime terror capability, including al-Qa'ida, Hezbollah, LTTE, and the Abu Sayyaf Group (ASG).[105] Al-Qa'ida as an organization has shown that it considers maritime terrorism a valid means for attacking the west. Al-Qa'ida's first successful attack was against the USS Cole on October 12, 2000, in the port of Aden, Yemen. Two suicide bombers loaded a small boat with 270 kilograms of C4 explosive, pulled alongside the Cole during its refueling operations and exploded the vessel. Seventeen sailors were killed, 37 were injured, and over $250 million damage was done to the vessel that took 14 months to repair. The USS Cole

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[103] Alex Viega, "Los Angeles Ports Facing Strike Threat," *Associated Press*, July 16, 2007, http://www.breitbart.com/article.php?id=D8QDQ3D80&show_article=1&cat=0. In 2002, a Longshore Workers Union 10-day strike on the west coast cost the U.S. economy an average of $1 billion dollars per day in losses.

[104] Iannotta, "17 Million Potential Bombs."

[105] National Memorial Institute for the Prevention of Terrorism, "The MIPT Terrorism Annual, 2006," 30-40, www.mipt.org/getdoc.asp?id=4102&type=d.

example shows that al-Qa'ida can, with relatively little funding ($40,000), cause damage in the hundreds of millions of dollars and effectively take a warship out of the fleet for over a year.[106]

The mastermind of maritime terrorist operations for al-Qa'ida was Abdul al-Rahim al-Nashiri, otherwise known as the "Prince of the Sea."[107] According to Michael Richardson, a visiting Senior Research Fellow at the Institute for Southeast Asian Studies, al-Nashiri based his operation on four pillars: (1) using a zodiac speed boat packed with explosives to ram a ship; (2) using medium sized boat as bombs to be blown up near slips or ports; (3) using airplanes to ram boats; and (4) having underwater demolition teams. Before he was captured, al-Nashiri planned to attack U.S. warships in the Straits of Hormuz and Gibraltar with small boats, to bomb the Navy's 5th Fleet headquarters in Bahrain, and to fly a small aircraft into a vessel moored in a United Arab Emirates port.[108] During interrogation, al-Nashiri revealed that, if warships became too difficult to approach, tourist ships could be targeted.[109] A dossier captured with al-Nashiri listed cruise ships sailing from western ports among "targets of opportunity," indicating that mega-cruise ships exceeding 140,000 gross tons and carrying over 5000 passengers and crew were desirable targets for terrorists.[110]

The Islamist extremist suicide terrorist, whether by land or by sea, has little concern for the fact that he will be committing suicide, which is normally strictly condemned in Islam. Radical Islamic imams have clearly stated that killing oneself in the benefit of Islam is different from normal suicide in that "he who commits suicide kills himself for his own benefit, but he who commits martyrdom sacrifices himself for the sake of his religion and his nation . . . the Mujahid is full of hope." Like the Japanese

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[106] Lorenz, "The Threat of Maritime Terrorism to Israel," 32.

[107] Ibid., 31.

[108] Lorenz, "The Threat of Maritime Terrorism to Israel," 31, quoting Michael Richardson, "A Time Bomb for Global Trade: Maritime-related Terrorism in an Age of Weapons of Mass Destruction," *Institute for South Asian Studies*, February 25, 2004, www.iseas.edu.sg/viewpoint/mricsumfeb04.pdf.

[109] Christopher Dickey, "High Seas Terrorism," *Newsweek*, January 27, 2003, 4.

[110] Ben English, Ian Gallagher and Jeff Sommerfield, "Al-Qaeda Blueprint Exposed," *The Courier-Mail*, December 29, 2003.

Kamikaze who described their impending deaths as "cherry petals that fall before bearing fruit, so too, for the Palestinian shaheed (martyr): they are youth at the peak of their blooming, who at a certain moment decide to turn their body into body parts . . . flowers."[111]

The threat of small boat attack against U.S. naval and other assets continues to be a major and growing worry today. Early in 2008, the M/V Global Patriot, a vessel under short term charter to the Military Sealift Command and the U.S. Navy, fired on a small boat that approached too close to the vessel as it was passing through the Suez Canal, killing at least one of the Egyptian men on board.[112] Although the small boat was presumably just trying to get close to the vessel to sell some goods, U.S. naval vessels cannot take chances after the USS Cole incident. One thing that the attack on the Cole showed was that the small boat was an effective weapon against much more powerful adversaries. As noted below, several other terrorist groups have taken that knowledge to heart, especially the Tamil Sea Tigers of Sri Lanka,[113] although they were an active maritime terrorist organization before the rise of al-Qa'ida.

[111] Scott Atran, "Soft Power and the Psychology of Suicide Bombing," *Terrorism Monitor*, June 2, 2004, http://www.jamestown.org/single/?no_cache=1&tx_ttnews%5Btt_news%5D=26613 quoting from an Editorial in *Al-Risala Hamas Weekly*, June 7, 2001.

[112] Associated Press, "U.S. Ship Fires on Motorboat in Gulf of Suez; 1 Reported Dead," *Foxnews.com*, March 25, 2008.

[113] Amy Waldman, "Masters of Suicide Bombing: Tamil Guerrillas of Sri Lanka," *New York Times*, January 14, 2003.

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III. OTHER NATIONAL/INTERNATIONAL RESPONSES TO MARITIME TERROR

A. ISRAEL

Israel has unfortunately accumulated a vast amount of experience in combating maritime terrorism. Over the past decades, according to a senior Israeli naval officer, Israel has detected more than eighty maritime terror plots.[114] While most of these attacks were detected and deterred, some were successful, including an incident in 1974, when Palestinian terrorists sailed a vessel onto a beach in Naharia and then killed four and injured eight Israelis before being killed by Israeli security forces, and another attack in Naharia in 1979, where Palestinian Liberation Front terrorists landed on the beach using a rubber boat, and killed a policeman and three members of an Israeli family in an apartment there. The Fatah Palestinian group was involved in an operation where a small but fast dinghy vessel was launched from a mother ship outside Israeli waters in 1975. Eight terrorists came ashore on a Tel Aviv beach, attacked the Savoy hotel and took thirteen hostages. Eventually, after a siege by Israeli commandos, seven of the terrorists, eight of the hostages and three policemen were killed. A similar event in 1978 called the Coastal Road attack resulted in the deaths of thirty-seven Israelis.[115]

The first suicide maritime attack came in 1988 when a member of the Popular Front for the Liberation of Palestine steered a fishing vessel loaded with explosives near an Israeli naval vessel and detonated it, but no damage was done to the Israeli vessel. In an attempted terrorist delivery effort in 1990, six speed boats were sent towards Israel from a Libyan mother ship; one sank, two broke down, one turned back, one was captured by the Israeli Navy, while the other made it to shore only to have all the terrorists immediately captured. In 2002, another fishing vessel suicide attack from the Palestinian Islamic Jihad group resulted in some damage and four injuries to the crew of

[114] Lorenz, "The Threat of Maritime Terrorism to Israel," 3.

[115] Ibid.

the Israeli Navy vessel Daboor. A Hamas-sponsored suicide rafter case occurred in 2003 against the same naval vessel Daboor - only the suicide bomber was killed; there were no other injuries or damage.[116]

In response to the maritime threat, Israel developed a comprehensive coastal defense system using both military and civilian aspects, wherein the public is constantly advised to be on the lookout for and report suspicious activities. The "coastal defense" part of the comprehensive system is the responsibility of the Israeli Navy. This defense consists of intelligence gathering, naval patrols outside Israeli territorial seas, coastal radar defense shields, the establishment of maritime security areas, and force protection programs.[117]

Israel uses land-based aerial reconnaissance patrols (Sharaf Maritime Aircraft) and Israeli naval patrols to gather intelligence for maritime domain awareness out to 100 miles from shore. These patrols, done on an almost constant yet random basis, are the outside barrier to Israel's layered defense system. Closer in towards the Israeli coast, nine radar stations scanning out to thirty-two nautical miles give a picture of all maritime vessel movements; this system has the ability to detect rubber boats out to ten miles. Regional command centers can direct eleven coastal patrol boats to investigate suspicious vessels and objects. Closer to shore, Israel has placed floating barriers and fences with sensors to deter and detect intruders;[118] within Israeli ports and along Israeli beaches are extensive CCTV systems that are constantly monitored, and human lookouts are posted inside the ports. Divers are also used to randomly inspect the bottoms of vessels entering Israeli waters.[119]

Israel's approach can be described as an increased layered approach to maritime terrorism, with each level of maritime security/defense increasing as vessels approach the

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[116] Lorenz, "The Threat of Maritime Terrorism to Israel."

[117] Ibid., 39. Based on interviews with Israeli Navy Commanders in December 2006.

[118] Ibid., 40.

[119] "Israel's Navy Steps Up to Security Challenge in Wake of Gaza Pull-Out" *JINSA Online*, May 31, 2006, www.jinsa.rg/articles/print.html/documentid/3417.

shore. The procedures and tactics that Israel uses to maintain maritime domain awareness are extensive and effective, and some of them could be used by the United States for future planning purposes.

B. SINGAPORE/SOUTHEAST ASIA

The Southeast Asia region, including the countries of Malaysia, Indonesia, Singapore and the Philippines, has become a hotbed of maritime piracy and terrorism. It is the region most prone to acts of piracy, accounting for around fifty percent of all attacks worldwide. This situation is aggravated by indigenous terrorist groups with strong maritime traditions; the Abu Sayyaf Group (ASG), the Gerakan Aceh Merdeka (GAM) and the Jemaah Islamiyah (JI) are all terrorist groups based in Southeast Asia with the intention and proven capability to wage maritime terrorism.[120]

The International Maritime Bureau reported in 2003 that out of 445 actual and attempted pirate attacks on merchant ships, 189 attacks occurred in Southeast Asian waters, 121 of them in Indonesian waters, and 35 around Malaysia and Singapore, particularly in the congested Straits of Malacca.[121] "Because piracy is frequent in Southeast Asia, terrorists have found it an attractive cover for maritime terrorism . . . [and] terror groups like Al-Qa'ida could also use pirate tactics either to attack ships, or to seize ships to use in terror attacks at megaports, much like the September 11 hijackers used planes."[122]

Maritime terrorism is Southeast Asia is all the more serious a regional security concern because al-Qa'ida and its operatives have a keen awareness of maritime trade and understand its significance to the global economy.[123] Singapore is very aware of the terrorist threat to its port (either the largest or second-largest port in the world by volume and traffic), and has implemented a small boat tracking system that goes above and beyond the requirements of the ISPS Code. Singapore now requires that all small vessels

[120] Rommel C. Banlaoi, "Maritime Terrorism in Southeast Asia: the Abu Sayyaf Threat," *Naval War College Review*, Autumn 2005.

[121] Ibid.

[122] Ibid.

[123] Ibid.

have an AIS-like transponder called the Harbor Craft Transponder System (HARTS), that sends out a signal identifying the vessel and its position, course and speed to the Singapore Maritime and Port Authority.[124] Importantly, the government pays for the equipment and its installation on all small vessels, which significantly increased the recreational boating public's support of the program.[125]

The Philippines has begun to address the maritime terrorism problem there by identifying the need to strengthen the intelligence capability of law enforcement agencies in the Philippines, noting that "a sound intelligence system is a vital part of any counterterrorism strategy, whether land-based or maritime, as a source of information on the nature of terror groups, the threat they represent, and their intentions, capabilities, and opportunities."[126] Accurate and reliable intelligence may, in fact, be the most effective weapon against terrorism, enabling operational agencies and law enforcement authorities to develop measures to detect a terrorist threat at the planning and preparation phases.[127]

The Philippines has come to the conclusion that while intelligence and military might are important parts of the counterterrorism effort, the government must also take a holistic approach by beginning to address the root causes of the terrorism also.[128]

In a article published in the *Asia Times*, Eric Koo discussed the threat that terrorism and piracy posed to the Malacca Strait and its bordering countries, and how those countries are currently working against this threat.[129] In July 2004, the three countries bordering the Malacca Straits, Singapore, Malaysia, and Indonesia, began

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[124] "Singapore Beefs up Maritime Security; Installs Transponders on Small Vessels," *Agence France Press*, July 1, 2005, www.singapore-window.org/sw05/050701a1.htm.

[125] Ibid.

[126] Banlaoi, "Maritime Terrorism in Southeast Asia," citing Rohan Gunaratna, "Terrorism and Small Arms and Light Weapons," *Terrorism and Disarmament*, Occasional Paper 5, 54, October 2001.

[127] Ibid. Quoting Karl B. Kaufman, "Weak Intel Blamed on Overzealous Spy Units," *Manila Times*, March 26, 2004.

[128] Ibid.

[129] Eric Koo, "Terror on the High Seas:" Part 1, "Southeast Asia's Modern-day Pirates," *Asia Times Online*, October 19, 2004, http://atimes.com/atimes/Southeast_Asia/FJ19Ae01.html; Part 2, "Tides of Terror Lap Southeast Asia," October 20, 2004, http://www.atimes.com/atimes/Southeast_Asia/FJ20Ae02.html; and Part 3, "Strategies for Maritime Security," October 21, 2004, http://www.atimes.com/atimes/Southeast_Asia/FJ21Ae03.html.

coordinated naval patrols of the straits to counteract the maritime terrorist and piracy threats. In Part 3 of Koo's article relating to strategies for maritime security in the region, he suggested that smaller and faster gun-boats should be used in this effort rather than the larger Naval vessels currently being used, and that helicopters should be an integral part of these vessels' operations.[130]

Further, the author suggested that political measures need to be taken at the highest levels between these three countries to provide a groundwork for understanding that anti-piracy and terrorist operations at sea will sometimes involve the inevitable intrusion into one or the other country's territorial waters.[131] Importantly, however, the author notes that naval firepower is not the final answer, as the best solution would involve locating and disrupting the terrorists'/pirates' planning and operations before they take to the water. There are numerous islets and hidden alcoves throughout this area that give hidden shelter to the terrorists, and the best way to attack this threat is through an effective and efficient intelligence and security network between these nations that would locate and/or deter the staging areas of these operations before they ever begin.

C. FRANCE

After the recent hijacking of the yacht Le Ponant by small boat-borne pirates off of the coast of Somalia in the Gulf of Aden, the French government sought changes before the United Nations Security Council to protect shipping off the coasts of countries susceptible to pirate attacks. On April 4, 2008, pirates using small boats came alongside and boarded the cruising yacht Le Ponant, taking its crew hostage; twenty-two of the crewmembers were French. The pirates released the vessel and hostages after the owner of the yacht paid a ransom. However, once the pirates returned to shore in Somalia, a French attack helicopter chased a vehicle carrying some of them and fired into the

[130] Koo, "Terror on the High Seas," Part 3.

[131] Ibid.

vehicle, destroying its engine. There were conflicting reports over whether some of the pirates were killed, but nonetheless, six of the twelve hostage-takers were taken into custody for trial in French courts.[132]

At the United Nations Security Council, the French government sought a new international agreement wherein countries would be requested to consent to foreign naval forces entering their territorial sea when engaging in operations against pirates and armed robbers endangering the safety of life at sea.[133] Passage of such a new maritime convention would enable the United States and all other nations to pursue pirates, terrorists, and other armed robbery suspects as sea, wherever they may try to escape, including the territorial waters of other nations. This would be especially important along the borders with Mexico and Canada, and island nations in the Caribbean, as the Coast Guard could have the authority to pursue pirates, i.e., terrorists, into adjacent nations' territorial waters without having to stop at the border to ask that nation's permission.

D. SRI LANKA

Beginning in the 1970s, the Liberation Tigers of Tamil Eelam (LTTE) and other Tamil separatists groups demanded that an independent state be established in areas of Sri Lanka inhabited by ethnic Tamils. The LTTE, also known as the Tamil Tigers, has used conventional, guerrilla, and terror tactics, including some 200 suicide bombings, in a bloody, more than two-decade-old civil war that has claimed more than 60,000 lives and displaced hundreds of thousands of Sri Lankans. The U.S. State Department lists the LTTE as a foreign terrorist organization.

The Tamils are an ethnic group who live in southern India (mainly in the state of Tamil Nadu) and on Sri Lanka, an island of 19 million people off the southern tip of India. Tamils comprise about eighteen percent of the island's population, and most live in northern and eastern areas. Their religion (most are Hindu) and Tamil language set them apart from the three-quarters of Sri Lankans who are Sinhalese—members of a largely

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[132] Associated Press, "France: Pirates Captured, Hostages Freed," *CBS Evening News*, April 11, 2008, www.cbsnews.com/stories/2008/04/11/world/main4009248.shtml.

[133] "France and IMO Agree on Prevention and Suppression of Piracy and Armed Robbery," *IMO Newsroom*, April 15, 2008, www.imo.org/newsroom/mainframe.asp?topic_id=1709&doc_id=9159.

Buddhist, Sinhala-speaking ethnic group. When Sri Lanka was ruled by the British, the Tamil minority was seen to have received preferential treatment. Since Sri Lanka became independent in 1948, the Sinhalese majority has dominated the country. The remainder of Sri Lanka's population includes ethnic Muslims as well as Tamil and Sinhalese Christians.[134]

As noted above, the LTTE group is known for the significant number of suicide bombings carried out by its members. The LTTE is also well known worldwide for its expertise and frequent use of maritime small boat assets that carry out suicide attacks at sea by driving explosive-laden small boats into Sri Lankan naval vessels and commercial vessels.[135] The maritime small boat suicide bombers are known as the Tamil Sea Tigers or the Black Sea Tigers, and they have had numerous successful attacks, including sinking large commercial ships, a Sri Lankan Fast Attack Ship with the loss of ten to fourteen crewmen, and the Sri Lankan command ship Abitha.[136] As of 2004, twenty-two maritime suicide attacks had led to the large scale destruction of ships and naval vessels, and the deaths of at least eighty-eight persons.[137]

Captain Pelkofski, formally of the Joint Operations Directorate at U.S. Fleet Forces Command, wrote that, although the maritime environment has remained relatively calm in the Global War on Terror, "a sustained, destructive storm churns over the horizon. Despite the inherent challenges, Al-Qa'ida can attack, has attacked, and will again attack maritime targets."[138] Referring to the Sea Tigers and the Tamil separatist groups specifically, he stated that the skilled, organized and equipped maritime arm of the LTTE presents al-Qa'ida with an excellent organization to copy.[139] He noted that the

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[134] Pretti Bhattacharji, "Liberation Tigers of Tamil Eelam (AKA Tamil Tigers) (Sri Lanka, Separatists)," *Council on Foreign Relations, Backgrounder*, January 11, 2008, http://www.cfr.org/publication/9242.

[135] B. Raman, "First Maritime Terrorism Attack of 2006," *International Terrorism Monitor*, Paper No. 13, August 1, 2006, www.southasiaanalysis.org/%5Cpapers17%5Cpaper1667.html.

[136] R. Ramasubramanian, "Suicide Terrorism in Sri Lanka," *Institute of Peace and Conflict Studies*, August 2004, www.ipcs.org/IRP05.pdf.

[137] Ibid.

[138] B. Raman, "First Maritime Terrorism Attack."

[139] Ibid.

LTTE perpetuated its maritime terrorism expertise by training its members "in a maritime school and academy, formally packaging and publishing a body of knowledge applicable to maritime terrorism."[140] (A discussion on maritime piracy and its implications for maritime terrorism is discussed in Chapter VII, below).

Sri Lanka and the LTTE successfully reached a temporary ceasefire in 2002 while they discussed an autonomous region for the Tamils in the North and East, but since the 2005 tsunami and the recovery period afterward, the LTTE has increased its attacks and the Sri Lankan military has responded harshly, including using intelligence agents to set up assassinations of LTTE leaders. Indian intelligence agencies helped the Sri Lankans to target air strikes against LTTE strongholds, and the LTTE has recently lost control over a large portion of their eastern territory.[141]

E. NATO

After the terrorist attacks on 9/11, the North Atlantic Treaty Organization (NATO) undertook a maritime security operation called Able Endeavor in the Mediterranean Sea; up to eight NATO vessels keep track of vessel and cargo flows over the entire Sea, including the Straits of Gibraltar, with a goal of detecting and deterring terrorist activity in the Mediterranean. This maritime operation was one of the immediate means that NATO undertook to show solidarity with the United States after the attack, after invoking Article 5's "Collective Self Defense" clause.[142]

Since Operation Able Endeavor's inception, the NATO vessels have "monitored" over 75,000 vessels, boarded over 100 suspect vessels, and escorted nearly 500 large commercial vessels. The escorts of the vessels were designed to prevent a USS Cole or M/V Limburg type attack, and to protect the free movement of oil through the region, as more than 65% of Western Europe's oil supplies pass through the Mediterranean Sea.[143]

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[140] B. Raman, "First Maritime Terrorism Attack."

[141] B. Raman, "Need for Increased Alertness Against LTTE," *International Terrorism Monitor*, Paper No. 382, March 13, 2008, http://www.southasiaanalysis.org/%5Cpapers27%5Cpaper2619.html.

[142] "Operation Active Endeavor," *North Atlantic Treaty Organization Topics*, November 17, 2008, http://www.nato.int/issues/active_endeavour/index.html.

[143] Ibid.

Some NATO nations, mainly Greece, Italy, Spain and Turkey, contribute directly to the operation with naval assets. Escort operations in the Straits of Gibraltar involve the use of fast patrol boats from Northern European allies Denmark, Germany and Norway; Spain also provides additional assets in the straits.[144] The escorts in the Straits of Gibraltar generally use the small fast boats because of the narrowness of the straits and the numerous commercial ships passing through that entrance every day.

F. INTERNATIONAL LESSONS LEARNED

Although the nations mentioned above have responded differently to the threat of maritime terrorism, some general "lessons learned" can be incorporated by the United States and the U.S. Coast Guard's PWCS mission concerning the small boat attack threat. All maritime nations have benefited from the increased use of shared intelligence to try and stop the maritime terrorists before they get on the water to begin their attacks. This "intelligence" runs the gamut from the naval and air patrols used by Israel for MDA, electronic sensing devices, patrols by vessels in Southeast Asian areas where terrorists may have hidden enclaves for the staging of attacks, and the general human intelligence gathering involving the fostering of relationships and the use of spies and informants such as those that helped Sri Lanka increase its success against the LTTE. These sharing activities emphasize the need for the United States to cooperate with its maritime neighbors by sharing maritime-related intelligence.

As it is generally very difficult to stop a small boat attack once it has commenced, the best opportunity for success, worldwide, has come from gathering intelligence beforehand, maintaining an active presence in the areas where these attacks could be staged, and cooperation and collaboration between neighboring maritime nations. The situation for detecting preparations for a small boat attack in the United States is different from many other nations because of the vastness of U.S. territorial waters, meaning that the most likely point of attack will come from vessels already within those territorial waters. Additionally, as shared intelligence has proven to be an effective tool means that

[144] NATO, "Operation Active Endeavor."

intelligence sharing here will be required not only with international partners, but also with federal, state and local partners. Sharing of information is what's most important, whether it be government-to-government or agency-to-agency.

IV. RISK-BASED DECISION MAKING RELATING TO MARITIME TERRORISM

Because of the vast number of possible attack locations in the United States, the U.S. Coast Guard and its federal, state and local agency counterparts must use risk-based decision-making tools to attempt to deter attacks where they are most likely to originate. While many new technologies and many possible tactics and patrols could all be useful in reducing the vulnerability of vessels to attack, the cost of countermeasures as compared to the risk will always be a necessary part of the calculation.

> A commonly-accepted formula for risk evaluation is: risk = (threat x vulnerability) x consequence. Threat equals the likelihood that a given malicious action or attack will be initiated against a specific target, vulnerability equals the likelihood that a particular malicious action or attack is successful and consequence equals the measure of loss experienced in case of a successful attack.[145]

$$\text{Risk} = \left(\frac{\text{Threat} \cdot \text{Vulnerability}}{\text{Countermeasures}} \right) \cdot \text{Consequence}$$ [146]

Before any country, including the United States, allocates its limited port security funding and the man-hours of its Coast Guard and other federal/state/local agency personnel, it should conduct a recognized and accepted risk management process to determine whether the expenditure reduces the risk sufficiently to be justifiable. After a while, the implementation of additional countermeasures will not reduce the risk sufficiently to be justifiable.[147]

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[145] Dale Ferriere, "Using Technology to Bridge Maritime Security Gaps," National Infrastructure Institute Center for Infrastructure Expertise, *Whisperwave.com Blog*, comment, September 6, 2005, www.ni2cie.org/downloads/MaritimeSecurity-v0816.pdf.

[146] Ibid.

[147] Ibid.

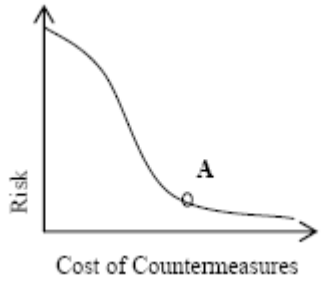

Figure 4. As The Cost of Countermeasures Rise, The Alleviated Risk Decreases[148]

A cooperative requirement to patrol/visit those areas (marinas, boat ramps, etc.) where an attack could more likely be staged should be implemented inside U.S. territorial waters in order to act as a deterrent; direct costs and costs in man-hours would be limited, as most of the locations of the marinas are nearby where Coast Guard and other agencies regularly patrol. U.S. internal maritime forces, including the Coast Guard, other federal agencies (ICE, CBP, etc.) and state and local law enforcement agencies, must make it a daily part of their homeland security/law enforcement activities to visit areas where these attacks may originate, while also encouraging the participation of the maritime public in reporting suspicious activities. Hence, while the exact level of the specific risk and threat of a small boat attack occurring is difficult to ascertain, these specific types of patrols and community interaction can be undertaken with little additional cost and effort, thereby make the expenditure to reduce the risk acceptable. Further specific special patrol and presence activities should also be performed in those areas that are normally far from any regular law enforcement presence in order to eliminate the possibility of safe refuge in a remote marina, despite the possible increased cost, as the buy-down of risk of an attack emanating from marinas in those areas would be reduced

In a recent article published in the *Maritime & Border Security News* on July 25, 2007, Christopher Doane and Joseph DiRenzo III, two retired Coast Guard officers, discussed the National Small Vessel Security Summit sponsored by DHS that was held in June 2007[149] to let small boat owners and state and local governments discuss any

[148] Ferriere, "Using Technology to Bridge Maritime Security Gaps."

[149] Doane and DiRenzo, "Small Vessel Security Summit."

concerns relating to the possible implementation of new security regulations on small vessels.[150] While the U.S. government and DHS have mainly concentrated on large vessels and containers, the U.S. Coast Guard has always had concerns about small vessels, due to its history of search and rescue efforts, its previous anti-rum-running activities during prohibition, and its current drug war and countering illegal maritime migrants' efforts. However, with the increased risk of suicide attacks by small, explosive-laden vessels,[151] the most common weapon of choice of maritime terrorists the world over, the U.S. Coast Guard and the nation must begin to think about the small boat threat in an entirely different way, and view possible increases in regulation as only a minor cost and inconvenience for a greater good.

In the United States, small vessels have been commonly used for centuries for maritime smuggling of people, drugs and other contraband (Doane and DiRenzo also noted that smaller vessels are often used to rendezvous with a larger vessel offshore to carry the illicit cargo into the nation in a less detectible mode, and that these forms of smuggling can be used to smuggle terrorists and their weapons as easily as drugs or illegal migrants[152]). For example, in October 2008, five Mexicans attempted to enter the U.S. from Mexico using a small boat. Customs and Border Patrol detected the vessel because of its suspicious movements and notified the Coast Guard in San Diego, who dispatched two 33-foot vessels. They located and stopped the vessel, determined there were five immigrants attempting to enter the U.S. illegally, and took them into custody.[153] A photo of the small boat used is shown in Figure 5, below. Perhaps this event and others like it could have been prevented had there been additional regulatory requirements to own and operate the vessel that the migrant-smugglers may not have been able to meet.

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[150] Doane and DiRenzo, "Small Vessel Security Summit."

[151] Also known as waterborne improvised explosive devices or WBIEDs.

[152] Doane and DiRenzo, "Small Vessel Security Summit."

[153] "Migrants Apprehended by Coast Guard and CBP," *Military.com*, October 13, 2008, http://www.military.com/news/article/coast-guard-news/migrants-apprehended-by-cg-and-cbp.html?ESRC=coastguard.nl.

Figure 5. Vessel Used in Smuggling Attempt[154]

As discussed above, despite the obvious threat of small boat attacks, the International Community, the Congress and DHS, and the Coast Guard have mainly focused on creating security regulations that concentrate on larger vessels and on the content of containers coming into the United States.[155] As an example, when the Coast Guard set up its MDA Directorate,[156] it emphasized in the directorate's documents the importance of interagency cooperation and planning by stating the "Coast Guard MDA plans, policy and assessments office will focus on the development of interagency and USCG plans and processes that drive MDA development and on outward looking threats," and called for the Coast Guard to assume sponsorship of new programs such as a nation-wide AIS and long range vessel tracking.[157] AIS would require beacons to be placed on board all large vessels so that their movements, both locally in port areas and worldwide, could be monitored by any coastal state.[158] Clearly the United States' primary MDA focus has been and is concentrated on interagency planning with other

[154] Military.com, "Migrants Apprehended."

[155] Paul W. Parfomak and John Frittelli, "Maritime Security: Potential Terrorist Attacks and Protection Priorities," *CRS Report for Congress*, January 9, 2007. "A former Federal Maritime Commissioner has stated that 'it is fair to say there has been little to no emphasis on non-containerized cargo in the political arena,' while in contrast, 'virtually everyone' in the industry think non-containerized cargo is in 'many respects a more vulnerable path.'"

[156] U.S. Coast Guard Message, "ALCOAST 160/04," http://cgwebdocs.comdt.uscg.mil/hsc_t-4/commcen/archives/genmsg2004/alcoast/alcoast160-04.txt.

[157] Ibid.

[158] Definitions, U.S. Coast Guard Navigation Center, http://www.navcen.uscg.gov/enav/ais/default.htm.

federal and state agencies, and on creating ways to focus security efforts on inbound and on outward-looking threats, instead of planning for the most obvious and already-documents threats from small boats.

That is not to say that DHS and the Coast Guard have taken no significant actions against the possible small boat threat. Since 9/11, the Coast Guard has greatly increased its security patrol and small vessel boarding activities and now escorts a much larger number of vessels with its now machine-gun carrying small boats. However, because of the historically-proven threat to the maritime transportation system that comes from smaller vessels carrying explosives, the Coast Guard and DHS must address this threat better, and they should use risk-reducing activities when determining what methods to employ. Fortunately, there has been a recent trend in that direction, including the Small Boat Summit, discussed above, and publication of the SVSS. The current Commandant of the Coast Guard Admiral Thad Allen, in his State of the Coast Guard speech on February 13, 2007, stated that "we're beginning to discuss what we need to do to address regimes regarding recreational vessels, un-inspected tug and barges, and small passenger vessels."[159] Also, DHS Secretary Chertoff, when speaking at the national Small Boat Summit, also noted the concern about possible small vessel terrorist attacks by stating that "[h]istorically, terrorists like Al-Qa'ida have used small vessels to carry out operations. They did so with respect to the USS Cole. They did so with respect to a French tanker [Limburg], so that this is certainly a threat that has some historic legacy."[160] The threat has been clearly identified, and the proposed actions to reduce that threat outlined in Chapter VIII take into account risk-reduction strategies required to make cost effective decisions.

A. THE REALITY OF THE THREAT TO THE UNITED STATES

Secretary Chertoff previously noted that the U.S. is concerned that small vessels could be used as conveyances to smuggle weapons, including weapons of mass

[159] Allen, "State of the Coast Guard."

[160] Doane and DiRenzo, "Small Vessel Security Summit."

destruction, into the United States. He noted the Congress's concern about weapons of mass destruction being brought into our ports inside a container, but stated

> but I have to tell you that if all we do is worry about containers, it's as if we're locking the front door and we're kicking the back door wide open. Because there's also a concern that we have that someone might seek to smuggle a weapon of mass destruction into a seaport, not using a container, but using a commercial vessel, including a vessel that is below 300 gross tons.[161]

Concern over the threat of the import of WMDs via the supply chain, i.e., including vessels, was echoed by DHS Under-Secretary Charles Allen when he spoke to the Maritime Security Council in stating

> while we currently assess that al Qa'ida lacks a WMD capability, it is equally clear that they intend to obtain this capability and would not hesitate to employ such a device should they obtain one. Since Terrorists lack a missile delivery capability for such weapons, our concern is their use of the supply chain to deliver a device directly and employ it in a major city.[162]

Speaking specifically of the small boat threat to the United States, Mr. Allen stated that, over his more than twenty years of working on terrorism issues, these types of attacks have spread from the eastern Mediterranean to the Arabian Gulf and Red Sea to the Philippine Sea, and that "this raises my concern regarding the possibility that one day, maritime attacks will reach our shores."[163] Even Albert Einstein was aware of and afraid of the possibility of a nuclear bomb being brought into a U.S. port and exploded, as he stated to President Roosevelt in a letter from August 1939: "A single bomb of this type, carried by boat and exploded in a port, might very well destroy the whole port together with some of the surrounding territory."[164]

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[161] Chertoff, "Remarks at Vessel Summit." Note: Per Title 33 Code of Federal Regulations, Part 104.105, the MTSA security regulations generally only apply to vessels in excess of 300 gross tons.

[162] U.S. Department of Homeland Security, "Remarks by Under Secretary Charles Allen at the Maritime Security Council," October 7, 2008, www.dhs.gov/xnews/speeches/sp_1223396110064.shtm.

[163] Ibid.

[164] Einstein, Albert. Letter President Franklin Roosevelt, August 2, 1939, http://dannen.com/ae-fdr.html.

Previous Coast Guard Commandant Admiral Collins wrote in 2004 that

> the Coast Guard's ability to protect America against threats emanating from the U.S. maritime domain requires unprecedented information, intelligence, and surveillance capabilities to anticipate where, when, and how adversaries may intend to harm us. Our maritime security missions, as well as all other Coast Guard missions, rely on situational awareness.[165]

Today, situational awareness of the near shore maritime domain remains a problem beyond the current capacity of the Coast Guard, due to its relatively small size and numerous other missions. Again, as noted by MDA Director High, awareness remains the most important of the part of the Coast Guard's maritime strategy, and proper awareness of the threat will lead to better prevention, preparation, and responses.

[165] U.S. Coast Guard Message, "ALCOAST 160/04," (emphasis added). http://www.offshoreoperators.com/VirtualDesktopFiles/USCG%20Records/USCG%20Maritime%20Domain%20Awareness%20R%20022159Z%20APR%2004.doc.

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V. THE WAR ON DRUGS AND ITS RELATIONSHIP TO THE SMALL BOAT TERROR THREAT

Nearly four decades ago, President Richard Nixon launched the war on drugs. In 1969, he declared that winning the battle against drug abuse was one of the most important of the urgent national priorities confronting the United States at that time.[166] That battle has continued to be waged since then, with annual costs currently estimated at $40 billion. The war has been fought by attempting to eradicate drugs where they are grown or manufactured, to interdict drugs as they are smuggled into the country by land, sea and air, and to keep drugs off the streets, where law-enforcement crackdowns have resulted in over 500,000 imprisonments over these forty years.[167]

The war on drugs has a direct correlation to the threat posed to the United States by small boat operators. Drug traffickers have recently become more successful at slipping drugs past U.S. Coast Guard efforts to interdict them at sea by using new technologies and submarine-like watercraft (discussed below). The U.S. military and the DHS are increasingly concerned that terrorist organizations will see this success and attempt to emulate it by bringing terrorists and weapons into the United States via these same means. Therefore, despite numerous indicators that the drug war has had little overall success, this thesis argues that it should be maintained and/or even increased, in order to provide some deterrent value against those that would seek to enter the United States via a small craft from foreign lands.

Numerous studies, including those from the Rand National Defense Research Institute and the Government Accountability Office,[168] have shown that interdiction on the high seas or at border crossings do not lead to a reduction in the flow of cocaine or

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[166] Alisa Barba, "The Forgotten War on Drugs," *National Public Radio*, April 2, 2007, http://www.npr.org/templates/story/story.php?storyId=9252490.

[167] Alisa Barba, "America's Forgotten War: A Series Overview; The Forgotten War on Drugs," *National Public Radio*, September 9, 2007, http://www.npr.org/templates/story/story.php?storyId=9286922.

[168] John Burnett, "War on Drugs Hasn't Stemmed Flow into U.S." The Forgotten War on Drugs, *National Public Radio*, September 9, 2007, http://www.npr.org/templates/story/story.php?storyId=9213877.

heroin onto American streets, with most analysts agreeing that successful interdiction has only pushed the problem to different locations around the hemisphere. For example, when interdiction efforts in the 1980s basically stopped the trafficking of drugs through the Caribbean into Florida, Mexico then became the leading drug trafficking area.[169] Also, one of the goals of the drug war interdiction effort was to decrease the supply of drugs on U.S. streets and thereby greatly inflate their prices so as to discourage consumption. However, while interdiction cost outlays averaged almost $1.8 billion from 1994 to 2003, the price of cocaine and heroin have stayed remarkably steady,[170] thereby showing evidence that that goal has not been accomplished.

However, not everyone agrees that the war on drugs is not working. The White House Office of National Drug Control Policy points out that there is now decreased drug use among teenagers, record seizures of cocaine on the seas and increasingly disrupted domestic methamphetamine production, etc.[171] "If you take the magnitude of a problem that was burning high and hot and spreading, but you constrain it, you choke it down, push back against it, you make it smaller – that is, I believe, victory."[172]

Since 9/11, the U.S. government has attempted to discourage drug use and to lessen demand by tying drug buyers to terrorists. The U.S. government even put up television ads during the Super Bowl in 2002 to show that when U.S. citizens use drugs, it is often the terrorists that benefit.[173] It should be noted that the 2001 National Drug Control Strategy only mentioned the word "terror" three times, and that all three were in reference to street terror, but all subsequent Strategy publications have indicated a strong tie between drugs and international terror.[174]

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[169] Mark A.R. Kleiman, "Illicit Drugs and the Terrorist Threat: Causal Links and Implications for Domestic Drug Control Policy," *CRS Report for Congress*, April 20, 2004.

[170] Kleiman, "Illicit Drugs and Terrorist Threat." See also, United Nations Office on Drugs and Crime; *Columbia Coca Survey for 2003*, June 2004, www.unodc.org/pdf/colombia/colombia_coca_survey_2003.pdf.

[171] Burnett, "War on Drugs Hasn't Stemmed Flow into U.S."

[172] Ibid.

[173] Steven L. Taylor, "When Wars Collide: The War on Drugs and the Global War on Terror," *Strategic Insights* IV, no. 6 (2005).

[174] Ibid.

A. DRUGS AND THE FINANCING OF TERROR GROUPS

The resurgence of the Afghanistan drug trade after the defeat of the Taliban should not have come as a surprise. In an article for the *Pacific News Service* just one month after 9/11, Earl Hutchinson wrote that a victory by the United States and its allies in Afghanistan would surely result in a surge of heroin in America's inner cities.[175] He noted that, although the Taliban had officially banned and severely reduced the amount of opium grown during their rule, they had only banned "cultivation" and not the opium trade; Hutchinson suggested that they may have been planning to increase the world price of opium to better fund their operation.[176] Today, the ease of growing opium and subsequently obtaining enormous profits as compared to other crops has proven to be too strong a temptation for the Afghanis to resist.

In testimony before the Senate Judiciary Committee in May 2003, Debra McCarthy, the Deputy Assistant Secretary for International Narcotics and Law Enforcement Affairs, an agency within the Department of State, testified that, when state sponsorship of terrorism came under increased scrutiny and greater international condemnation, terrorist groups looked increasingly to drug trafficking and other criminal activities as sources of revenue.[177] She also noted that, unlike criminal organizations who were involved in drug trafficking for profit, drug trafficking for terror groups often had a two-fold purpose. Some terrorists not only obtained the funding they desired, but they also believed they could weaken their enemies by flooding their societies with addictive drugs; therefore, too many terror groups, drug trafficking can be religiously justified by describing it as a direct weapon used against western societies.[178]

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[175] Earl Ofari Hutchinson, "Collateral Damage; Taliban Defeat Could Bring Drugs to U.S. Cities," *Pacific News Service*, October 16, 2001, http://news.newamericamedia.org/news/view_article.html?article_id=f6de0a11044c3f8321cdc7e4b3d54e5b.

[176] Ibid. Noting that while the Taliban officially banned cultivation of poppies in 2000, they nonetheless taxed the traffickers in order to gain additional funding.

[177] Deborah McCarthy, "Narco-Terrorism: International Drug Trafficking and Terrorism – A Dangerous Mix," Testimony before the Committee on Judiciary, U.S. Senate, May 20, 2003, www.state.gov/p/inl/rls/rm/21129.htm.

[178] Ibid.

While the amount of financing that terror groups obtain from drug trafficking has significantly increased since the post-9/11 crackdown on state supported terrorism, terror groups profiting from drug trafficking is not a new phenomenon. On December 9, 1994, the General Assembly of the United Nations issued a Declaration on Measures to Eliminate International Terrorism, wherein it expressed its concern "at the growing and dangerous links between terrorist groups and drug traffickers and their paramilitary gangs, which have resorted to all types of violence, thus endangering the constitutional order of states and violating basic human rights.[179]

A 1996 GAO report entitled "Terrorism and Drug Trafficking: Threats and Roles of Explosives and Narcotics Detection Technology,"[180] stated that the U.S. was trying to reign in the amount of money earned by drug trafficking organizations by concentrating its efforts on reducing production, U.S. demand, and money laundering.[181] Deputy Assistant Secretary McCarthy, in her testimony as mentioned above, also noted that in the government's efforts to reduce funding to terrorists through money laundering, there "is no appreciable difference between anti-money laundering and counter-terrorist financing assistance. In each case, the objectives and tools are the same: we must build and institutionalize comprehensive regimes to help counter money laundering and terrorist financing."[182]

There are few, if any, other activities with such huge profit margins available to terror groups or organized crime groups as drug trafficking; at the same time, laundering of the funds obtained by trafficking is the activity that causes these groups to be most at risk of detection. In testimony before the same subcommittee on May 11, 2004, John Roth, Chief of the FBI's Criminal Division's Asset Forfeiture and Money Laundering Section, stated that most criminals sell drugs, commit securities and bank fraud, murder

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[179] Alex Schmid, "Links Between Terrorism and Drug Trafficking: A Case of Narco-terrorism?" *International Summit on Democracy, Terrorism and Security*, January 27, 2005, http://english.safe-democracy.org/causes/links-between-terrorism-and-drug-trafficking-a-case-of-narcoterrorism.html.

[180] U.S. Government Accounting Office, "Terrorism and Drug Trafficking: Threats and Roles of Explosives and Narcotics Detection Technology," March 1996. Also discussed the fact that terror groups were most likely to target aviation in the U.S. www.gao.gov/cgi-bin/getrpt?NSIAD/RCED-96-76BR.

[181] Ibid.

[182] McCarthy, "Narco-Terrorism."

and extort in order to make money.[183] But, once acquired, this money must somehow enter the legitimate financial system in order to be useful to the criminal. This cash – a criminal's greatest objective—is also one of his greatest vulnerabilities.[184]

> Drug trafficking gives a good example. Twenty two pounds of heroin will yield a trafficker about a million dollars. Having made this money, the drug dealer must now find a way to do something with it. That street cash would weigh about 256 pounds – ten times the weight of the drugs sold. For major drug trafficking organizations [and by implication, terror groups] this effect is multiplied. Drug dealers that sell $1 billion worth of cocaine must contend with 256,000 pounds of illicit currency. That bulk represents true opportunity for law enforcement.[185]

B. THE WAR ON DRUGS, THE WAR ON TERROR, AND SMALL BOATS

In a publication entitled "The War on Terror Versus the War on Drugs,"[186] the authors noted that there were several similarities and differences between the two "wars."[187] One similarity was that, just as sealing the border against cocaine and heroin has proven impossible, border interdiction is likely to be even less successful against explosive agents, nuclear materials or biological weapons, and detecting tens or even hundreds of terrorists amongst millions of border-crossers is almost impossible using current methods and technologies. Among the differences is that drug trafficking organizations are interchangeable, and thus the removal of one organization will have little effect, as others will simply take its place, while terror organizations are highly individual, and thus the removal of an organization like al-Qa'ida might make a large difference in the security of the United States.[188] Finally, the author suggests that the largely successful campaign against the American mafia, a campaign against a specific group of organizations rather than against a class of activities, may provide much more

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[183] John Roth, "Terrorist Financing and Money Laundering Investigations: Who Investigates and How Effective are They?" Testimony before the Committee on Government Reform, House of Representatives, May 11, 2004, http://www.access.gpo.gov/congress/house/pdf/108hrg/97396.pdf.

[184] Ibid.

[185] Ibid.

[186] Mark Kleiman, Peter Reuter, and Jonathan Caulkins, "The War on Terror and the War on Drugs: A Comparison," *The Journal of the Federation of American Scientists Public Interest Report* 55, no. 2 (2002).

[187] Ibid.

[188] Ibid.

insight into successful anti-terrorist policy that does the diffuse and less successful drug war.[189] Hence, according to the author, the U.S. should not fight a class of activities, i.e., a war on terror, but rather pursue a specific war and a specific war strategy against al-Qa'ida, the Shining Path or FARC.

The legalization of drugs lobby has also taken up the cause that the war on drugs is in fact a boost to terrorists. In a recent article, Sheldon Richman stated that

> what makes the [illegal] drug industry so lucrative is the U.S.-led effort to stamp it out. With prohibition come high risks and thus elaborate efforts to hide drug-related activity – in a word: the black market . . . Black markets tend to be run by the most ruthless and despicable characters and those who would have no problem in using violence to obtain their goals/profits."[190]

The very definition of a terrorist. The author then ends the article with the statement that "let's be blunt: the U.S. government helps finance terrorism."[191]

Both liberal and conservative Americans have spoken out in favor of legalizing drugs to take the profits out of the hands of the traffickers. In 1995, the *National Review* published a symposium of articles wherein even William F. Buckley, Jr., the conservative's conservative, was among the various authors that advocated the legalization of all drugs. He called the war on drugs "a plague that consumes an estimated $75 billion per year of public money, exacts an estimated $70 billion a year from consumers, is responsible for nearly 50 percent of the million Americans who are today in jail, occupies an estimated 50 percent of the trial time of our judiciary, and takes the time of 400,000 policemen."[192]

The ties between the war on drugs and the war on terror, as specifically relating to the small boat threat, were discussed in several recent articles concerning the increased

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[189] Kleiman, Peter Reuter, and Jonathan Caulkins, "The War on Terror and the War on Drugs: A Comparison."

[190] Sheldon Richman "Terrorism and The Drug War," *Freedom Daily*, January 2002, http://www.fff.org/comment/ed1101i.asp.

[191] Ibid.

[192] William F. Buckley, Jr., "The War on Drugs Is Lost," *National Review*, February 12, 1996, www.nationalreview.com/12feb96/drug.html.

use of submarine-like vessels by drug trafficking organizations. Such difficult-to-detect vessels have been identified as possible means of use by terrorists in the future.[193] The author described these new types of vessels as up to 80 meters in length with a sleek design, capable of skimming just below the surface, thereby making them extremely difficult to detect from surveillance aircraft and patrol boats.[194] Several examples of these vessels are shown below in Figures 6 through 9.

"[T]hese semi-submersibles, which exhibit some of the same characteristics as military submarines, mark a significant advancement in the ability of drug smugglers to slip past coastal defenses."[195] Coast Guard Commandant, Admiral Thad Allen, stated that he believed that the increased use of the semi-submersible was in direct response to the Coast Guard's successful tactic of using snipers in helicopters to shoot out the engines on drug smugglers' speedboats.[196]

Figure 6. An Example of a Semi-Submersible Submarine[197]

[193] "Drug Smugglers Now Use Minisubs; Terrorists May Use Them Too," *Homeland Security Daily Wire*, August 18, 2008, http://hsdailywire.com/single.php?id=6675.

[194] HSDailywire, "Drug Smuggler Use Mini-Subs."

[195] Ibid.

[196] Jeanne Meserve and Mike M. Ahlers, "Coast Guard Hunts Drug-running Semi-subs" *CNN.Com*, March 20, 2008, http://edition.cnn.com/2008/CRIME/03/20/drug.subs/.

[197] Photo of Cartel submarine taken off coast of Columbia by U.S. Naval Forces; May 5, 2008, http://www.davickservices.com/columbian_drug_custom-made_subs.htm.

Figure 7. A Semi-Submersible Submarine Moored between Two Boats[198]

Figure 8. A Semi-Submersible Submarine on Shore[199]

[198] Photo From: Paul Bedard, "Congress Torpedoes Drug Submarines Carrying Cocaine from Colombia," *USNEWS.com*, July 30, 2008, http://www.usnews.com/blogs/washington-whispers/2008/7/30/congress-torpedoes-drug-submarines-carrying-cocaine-from-colombia.html.

[199] Photo From: Bryan Bender, "For U.S., a Terror Threat Lurks in Drug Smuggling Subs; Shift of Cargo to Arms and People is Feared," *Boston Globe*, August 17, 2008, http://www.boston.com/news/nation/articles/2008/08/17/for_us_a_terror_threat_lurks_in_drug_smuggling_subs/

Figure 9. A Semi-Submersible Submarine at Sea[200]

In the article accompanying Figure 8, above, the Boston Globe's Bryan Bender wrote that the growing numbers of semi-submersible type watercraft had "set off alarms at the highest levels of the U.S. military and DHS."[201] Counterterrorism officials fear that what drug runners now use to deliver cocaine, terrorists could one day use to sneak personnel or weapons into the United States. Navy Admiral James Stavridis, commander of the U.S. Southern Command, also warned that "if drug cartels can ship up to 10 tons of cocaine in a semi-submersible, they can clearly ship or rent space to a terrorist organization for a weapon of mass destruction or a high-profile terrorist.[202]

The threat from these vessels will only continue to grow; Coast Guard intelligence officers predict 85 cases of semi-submersible use this year (2008) and 120 next year.[203] Therefore, as noted above, by "tracking people, cargo, and money, we can disrupt a plan to use a small boat laden with explosives rather than simply react to the attack."[204] The war on terrorism is primarily a war of information. Interagency and international cooperation is critical for putting together the pieces of the intelligence puzzle.[205]

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[200] Meserve and Ahlers, "Coast Guard Hunts Drug-running Semi-subs."

[201] Ibid.

[202] Ibid.

[203] Ibid.

[204] Richard Farrell, "Maritime Terrorism: Focusing on the Probable," *Naval War College Review* 60, no. 3 (2007): 55.

[205] Farrell, "Maritime Terrorism."

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VI. PIRACY: PREVIEW OF TERRORIST ACTIVITIES OF THE FUTURE?

The semi-submersible is just the most recent example of the increased threat posed by small boats against the maritime transportation industry, the U.S. Navy and Coast Guard vessels, and the nation's ports and maritime critical infrastructures. The concurrent recent increase in successful piracy attacks throughout the world also has grave implications for copycat activities by maritime terrorists. As pirates have become more successful in recent years, their success, much like the increased success of the semi-submersible watercraft, could inspire the maritime terrorists. Captain Pelkofski of U.S. Fleet Forces Command, when discussing the Sri Lanka Sea Tigers, noted "the skilled, organized and equipped maritime arm of the LTTE presents Al Qaeda with an excellent organization to copy;"[206] the same would seem to apply to the successful tactics used by pirates. If the terrorists see the ease with which most pirates are able to take control of large vessels, they are likely to learn from and copy these tactics for their own use in future maritime terrorist attacks.

An example of the ease with which most pirates are able to seize vessels was discussed in a recent article in the *Washington Post*.[207] The article, while first describing a successful escape from pirates off the Somalia coast by a Japanese vessel, also discussed how, in the few days before this unsuccessful attack, other pirates had seized four other vessels and their crews, including a Malaysian palm oil tanker with thirty-nine crew, an Iranian bulk carrier with twenty-nine crew, a Japanese chemical tanker and a German cargo vessel.[208] While the motives of most current pirate attacks are financial, seeking ransom for the vessels and crews, it is frightening that a chemical tanker with possibly hazardous material on board could so easily be seized and put under the control of criminals. This has grave implications, because criminals/terrorists operating small

[206] B. Raman, "First Maritime Terrorism Attack of 2006."

[207] Associated Press, "Pirates Fail to Hijack Japanese Ship off Somalia" *USAToday*, August 23, 2008, http://www.usatoday.com/news/world/2008-08-23-1398759476_x.htm.

[208] Ibid.

boats have demonstrated the ability to take over large dangerous cargo-carrying vessels anywhere in the world, including waters close to ports in the United States. Suppose that pirates take over a tanker carrying six hundred tons of liquefied natural gas and turn it over to terrorists. The terrorists could turn it into a floating bomb and sail it into the port of Los Angeles, where the explosion would cause a fireball with a diameter of 1,200 meters, destroying almost everything within this range and causing a large number of fatalities and casualties well beyond it.[209]

Just recently, a group of pirates attacked and seized control of the M/V Faina, a Ukrainian flagged vessel, as it passed near the Somalia coast on September 25, 2008. The significance of this specific pirate attack was that the vessel was carrying military cargo, including thirty-three tanks and tons of ammunition. There also remains a dispute as to where the military cargo was ultimately destined to arrive, with the Ukraine and Kenya governments stating that the equipment was to be accepted by Kenya, but with varying evidence that the military equipment was bound for Southern Sudan and Darfur, where recent civil war and ethic violence has made headlines.[210]

As of the writing of this thesis, the Somali pirates on board the vessel have made demands for millions of dollars in ransom money to free the vessel and its crew, and the U.S. and other navies, including Russia's, have positioned their warships in the area to watch over the Faina and the pirates. The pirates have stated that if they are attacked they will defend themselves until every last one of them is killed. However, in a hopeful sign that their concerns are strictly monetary, the pirates reportedly turned down a request from Islamic insurgents in Somalia for some of the arms.[211]

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[209] Cindy Vallar, "Piracy Versus Terrorism," *Pirates and Privateers; The History of Maritime Piracy*, August 2008, http://www.cindyvallar.com/terrorism.html quoting Joshua Ho, "The Security of Sea Lanes in Southeast Asia," *Military Technology*, May 2005, 16.

[210] Nick Wadhams, "The Somali Pirates: Tanks but no Tanks." *Time*, October 9, 2008, http://www.time.com/time/world/article/0,8599,1848772,00.html.

[211] "Hijacker Somali Pirates: We'll Fight to the Death before Surrendering to U.S., Russia," *Foxnews.com*, October 6, 2008, www.foxnews.com/printer_friendly_story/0,3566,433322,00.html.

Figure 10. U.S. Navy Photo of the Pirates Who Seized the M/V Faina[212]

An important result from the hijacking of the Faina is that the United Nations passed a resolution calling on all nations with a stake in maritime safety off Somalia to send military ships and aircraft to counteract the increase in maritime piracy in that region.[213] UN Resolution 1938 (2008) gave all nations' militaries the right to use "the necessary means" to stop piracy.[214] While the resolution currently applies only off the coast of Somalia, a precedent has been set for the UN to give permission for all maritime militaries to use all means necessary to stop the terrorist/pirate threat.

The maritime world has dealt with pirates for centuries, and the logical tie between piracy and terrorism can be deciphered by reading the words of the 16th century jurist Alberico Gentili's *De jure belli*: "Pirates are common enemies, and they are attacked with impunity by all, because they are without the pale of the law. They are scorners of the law of nations; hence they find no protection in that law."[215] Gentili recognized piracy as a threat not merely to the state, but to the idea of statehood itself. All states were equally obligated to attack pirates, whether or not they had been attacked

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[212] AP, "Hijacker Somali Pirates."

[213] Edith Lederer, "UN Calls for Action to Fight Pirates off Somalia," *Associated Press*, October 7, 2008, www.navytimes.com/news/2008/10/ap_pirates_sidebar_100708/. A listing of all approved U.N. Security Council Resolutions is located at http://www.un.org/Docs/sc/unsc_resolutions08.htm.

[214] Ibid.

[215] Douglas R. Burgess, Jr., "The Dread Pirate Bin Laden: How Thinking of Terrorists as Pirates Can Help Win the War on Terror," *Legal Affairs*, July-August 2005, www.legalaffairs.org/issues/July-August-2005/feature_burgess_julaug05.msp.

by pirates themselves.[216] Burgess argued that international law should be changed so that the war on terror would become akin to the war against the pirates, thereby making the crime of terrorism defined and proscribed internationally, and ensuring that terrorists would be properly understood as the enemies of all states. This legal status would bring universal jurisdiction, and terrorists could be captured wherever they are found by anyone who found them. Pirates are currently the only form of criminals subject to this special jurisdiction.[217]

In a recent article in *USA Today*[218] a spokesman for the U.S. Fifth Fleet in Bahrain stated that the United States had stepped up its patrols to deter terrorists off the Somali coast, as bolder and more violent pirate attacks had been occurring there. The U.S., in addition to stepping up patrols against these pirate activities, has sometimes intervened to rescue hostages and ships, and has increased its intelligence sharing in the area. In response to the UN Resolution 1838 allowing nations to intervene and take all necessary steps to stop piracy, NATO has sent ships to the waters off Somalia to help in the battle against pirates.[219]

Worldwide last year, pirates attacked 269 ships, took nearly 300 hostages, and killed five people. That represents nearly "a 10% increase over the previous year, and it's probably only half of it, given International Maritime Bureau estimates that an equal amount of attacks go unreported. Shipping companies often prefer to swallow their losses than to risk losing customers or insurance rate hikes."[220] All maritime nations are asked to report any pirate attacks or suspicious to the International Maritime Bureau, which tracks attacks and issues warnings to vessel when pirate activities are suspected in

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[216] Burgess, "The Dread Pirate Bin Laden."

[217] Ibid.

[218] Donna Leinward, "U.S. Targets Somali Pirates," *USA Today*, July 21, 2008, http://www.usatoday.com/news/world/2008-07-20-pirates_N.htm.

[219] Mohamed Amiin Adow, "NATO Warships Arrive to Deter Somali Pirates," *CNN.com/world*, October 19, 2008, www.cnn.com/2008/WORLD/africa/10/19/somalia.nato.pirates/index.html.

[220] D. J. Sigelbaum, "Piracy Sparks High-Tech Defenses," *Time*, April 18, 2008, http://www.time.com/time/business/article/0,8599,1732125,00.html.

a region.[221] Despite all the military actions, ransoms paid, etc., there remains no consensus on how to solve the pirate problem. The varying approaches include the recent payment of ransom by a South Korean shipping company to free one of their vessels, and the recent attack and re-takeover of a pirated ship by military members of a semi-autonomous region of Somalia.[222] A ten-year review of piracy attacks is included in Figures 11 and 12.

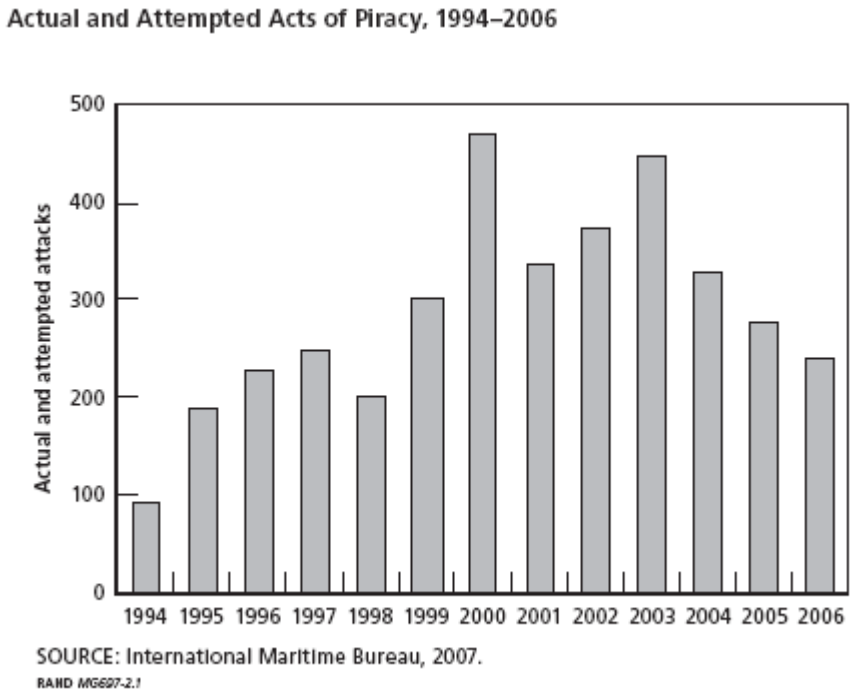

Figure 11. Actual and Attempted Acts of Piracy, 1994-2006[223]

[221] International Chamber of Commerce Commercial Crime Services. International Maritime Bureau Piracy Reporting Center, http://www.icc-ccs.org/index.php?option=com_content&view=article&id=30&Itemid=12. Member vessels are asked to report all attacks and suspicious sightings to the IMB Piracy Reporting Centre at 603 2031 0014 or reporting them online.

[222] Associated Press, "No Consensus on How to Solve Somali Pirate Problem," *Foxnew.com*, October 18, 2008, www.foxnews.com/printer_friendly_story/0,3566,440467,00.html.

[223] Peter Chalk, "Maritime Dimension of International Security: Terrorism, Piracy, and Challenges for the United States," Rand Project Air Force, January 1, 2008, http://www.rand.org/pubs/monographs/2008/RAND_MG697.pdf.

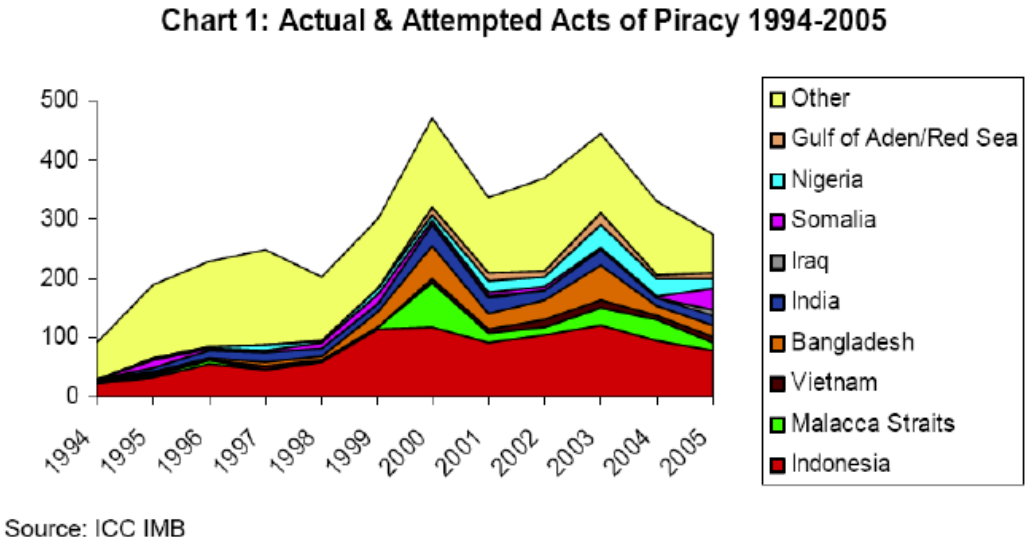

Figure 12. Location of Actual and Attempted Acts of Piracy, 1994-2005[224]

These armed attacks on cargo ships, oil tankers, and cruise ships are estimated to cost more than $1 billion a year, according to Peter Chalk, a senior security analyst at RAND Corp., "Piracy does affect U.S. commerce. It is to the economic interest of the U.S. that the sea lanes are as stable as possible."[225] As an example to follow, the U.S. and the maritime nations of the world should look at the progress made in the Strait of Malacca area in Southeast Asia, as noted in Chapter II. The U.S. military donated equipment, coordinated joint training exercises, and nudged Indonesia to cooperate with its two maritime neighbors Singapore and Malaysia, in order to get better control of this important area for oil and cargo shipments.[226] The U.S. also bolstered Indonesia's Navy with fifteen high-speed patrol boats and seven radar units. It trained with the navies from these three countries and persuaded them to share intelligence about ships passing through their waters, and Malaysia agreed to coordinate joint air patrols between the three countries to surveil the waterway.[227] The efforts seem to be working, as only thirteen

[224] Galletti, "Old and New Threats."

[225] Ibid.

[226] Ibid.

[227] Ibid.

pirate attacks were reported in the first six months of 2008, versus sixty-four attacks in the first six months of 2007.[228] Again, domain awareness and visible presence seems to be the major contributor to lessening the threats from small boat pirate attacks.

However, awareness and military presence should not be the end all of anti-small boat activities, and commercial ship-operating companies are taking actions on their own. The recent spate of pirate attacks has caused ship owner and insurers to look for an array of high-tech self-help tactics against such attacks. Among the offerings being used by vessels passing through dangerous areas are "night-vision equipment, high-powered water guns, ear-splitting claxons, and a lubricant foam that makes it difficult for pirates to get their footing."[229] The night-vision infrared radar equipment allows vessel operators to see small boat movements at a distance even at night, the water guns can keep the pirates/terrorists from being able to maneuver their vessels close enough to gain access to the vessel, the claxons make a close approach painfully loud for approaching pirates, and the lubricant foam makes it very difficult for any pirate/terrorist to climb up ladders to access the vessel's deck. These and other anti-small boat attack technologies are further discussed in Chapter IX.

The world's maritime nations have also taken steps to allow military vessels to approach and attack pirate ships even when those small boats have retreated into a nation's territorial waters. United Nations (UN) Security Council Resolution 1816, pushed by the U.S. and passed on June 2, 2008, allows the U.S. and its coalition allies to intervene by "all means necessary" for the next six months to stop piracy off the Somali coast,[230] while the latest UN Resolution, number 1838 noted above, does not have a time limit). This same legal authority could be expanded elsewhere throughout the globe wherever pirates and/or maritime terrorists attempt to operate.

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[228] Galletti, "Old and New Threats."

[229] Sigelbaum, "Piracy Sparks High-Tech Defenses."

[230] U.N. Security Council Resolution No. 1816 (2008), http://www.un.org/Docs/sc/unsc_resolutions08.htm.

Given the concentration of effort by the United States on the war on terror worldwide, and the fact that the government must always allocate limited financial resources, many have argued that the U.S. should not be spending such huge amounts on its interdiction efforts because, as noted above, most of the justification for the war on drugs was that the interdiction efforts would make the drugs so expensive on the streets that most people would choose not to purchase them. That has clearly been proven not to be the case. However, the increasing threat posed by semi-submersible vessels, pirates, and any future maritime terrorism tactic, including the illegal shipment of weapons, calls for the U.S. to maintain its interdiction efforts in offshore waters in order to attempt to address these new threats and the ongoing threat posed by small boats attempting to enter the U.S. via the maritime border.[231] As further argument for the continued use of forward-placed interdiction assets, the attempted illegal entry into the United States via the maritime border is expected to increase over the next several years as fences and other activities are increased along the land border with Mexico,[232] and the continued illegal international shipping of military weapons continues,[233]as noted by *Newsweek's* Fareed Zakaria:

> Every year, warlords, gangsters, militiamen, and terrorists kill tens of thousands of people in wars that are only sporadically reported to the outside world. They do their butchery using weapons obtained and delivered, to all sides of these conflicts, by [gray-market arms providers]. These are real weapons of mass destruction in the post-Cold War world, taking lives and shattering communities from the slums of Baghdad to the jungles of Colombia, from the streets of Beirut to the impoverished diamond-mining hamlets of South Africa.[234]

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[231] Emily Bazar, "U.S. to Plug Border Gap: Open seas" *USA Today*, August 13, 2008.

[232] Ibid.

[233] Douglas Farah, "War and Terror, Inc.," *The Washington Post*, September 23, 2007, http://www.washingtonpost.com/wp-dyn/content/article/2007/09/21/AR2007092101544.html.

[234] Fareed Zakaria, "Who's the Real Appeaser?" *Newsweek*, May 26, 2008.

With no effective international controls on the buying and selling of arms, plus the limited enforcement or even awareness of the shipping of these weapons by land or by sea, "the criminal-terrorist nexus in these areas will continue to threaten the U.S. and our allies"[235] and U.S. Coast Guard and other law enforcement (LE) agency efforts to counteract these threats at sea must continue.

At the same time, government non-maritime efforts must be increased to concentrate on eliminating money-laundering efforts of terrorist and organized crime groups. This is where the drug trafficking organizations are most vulnerable, and success in those efforts would force the drug smuggling organizations to reduce operations and thereby sending fewer semi-submersibles towards the United States.

However, to address the current threats posed by vessels as they approach U.S. borders, new technology and increased Coast Guard and law enforcement presence activities will have to be implemented in the near-short environment (see Chapter VIII, below), as "smaller irregular forces – insurgents, guerrillas, terrorists – will find ways, as they always have, to frustrate and neutralize the advantages of larger regular militaries."[236] Because the maritime terrorists and criminals are always attempting to find ways to counteract efforts to stop them, the U.S. must also be vigilant in always trying to stay one step ahead of their changing tactics.

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[235] "Dealing with Today's Asymmetric Threat to U.S. and Global Security," www.caci.com/announcement/CACI_Asymmetric_Threat_paper.pdf. A summary of remarks made by participants in the same-named May 2008 symposium sponsored by the National Defense University and CACI International, Inc.

[236] "Dealing with Today's Asymmetric Threat" (quotation of Secretary of Defense Robert M. Gates).

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VII. CURRENT U.S. INITIATIVES RELATING TO HUMAN INTELLIGENCE (HUMINT) GATHERING EFFORTS AGAINST THE SMALL BOAT THREAT IN U.S. WATERS

A. AMERICA'S WATERWAY WATCH

While the Coast Guard and DHS have generally concentrated their security regulations and activities on larger vessels arriving in the U.S. from foreign ports, they did not completely ignore the need for greater MDA in the local environment. In 2005, the U.S. Coast Guard initiated the America's Waterway Watch (AWW) program,[237] which was described in a Coast Guard press release[238] as being similar to the Neighborhood Watch program currently operating in many communities.

The AWW program was an attempt to involve the boating community in homeland security, because the Coast Guard and the DHS determined that the cooperation of all members of the maritime community is necessary for waterside awareness:

Public and private interests not only can build partnerships to help security the maritime domain – they have to. In the same way that a police force in a democratic society cannot hope to maintain order in a city without the help of key constituencies, so effective maritime security is unattainable without the support of key members of the maritime community. These range from other states, flag registries, shipping companies, and merchant mariners to recreational yachtsmen.[239]

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[237] *Captain Scott Evans, "Coast* Guard *Develops Americas Waterway Watch Program," Small Craft Advisory*, National Association of State Boating Laws Administrators, September/October 2004, 22, http://www.opr.auxnstaff.org/pdf/8nasbla_CG_aww.pdf.

[238] United States Coast Guard, "Coast Guard Launches America's Waterways Watch to Encourage Reporting of Suspicious Activity," March 3, 2005, https://www.piersystem.com/external/index.cfm?cid=786&fuseaction=EXTERNAL.docview&documentID=65244.

[239] Murphy, "The Role of 'Public-Private Partnership."

Part of the problem the Coast Guard or any port police force faces is discerning a terrorist needle in a haystack of thousands of legitimate recreational boaters. The U.S. has no national registry or national system of operator licensing for the 18 million recreational boats in the United States, and currently, the only way to anticipate whether a boater may pose a risk is by observing the vessel and its operator's behavior.[240]

However, as discussed below, the vast majority for the responsibility for the implementation of the AWW maritime community involvement program was placed on the U.S. Coast Guard Auxiliary, a volunteer, non-military non-law enforcement organization that mainly assists the active Coast Guard with patrols, search and rescue, boat operator training, etc. The Coast Guard Auxiliary is a uniformed voluntary component of the Coast Guard acting as a force multiplier by assisting the active duty Coast Guard with all missions other than law enforcement and military action.[241] The Auxiliary, with a membership of only approximately 27,000[242] was already an extremely busy organization before the AWW program responsibilities were added to its everyday normal duties of boater education, vessel safety checks, search and rescue, and general maritime assistance. Further, the only real action required by the AWW program was to advise boaters and others to call a toll-free number to report suspicious activity.

The AWW program is described on the first paragraph of its website as an effort by the Coast Guard in "enlisting the active participation of those who live, work or play around America's waterfront areas" in America's security.[243] The site also describes the program as being similar to the successful Neighborhood Watch program that asks community members to report suspicious activity to local law enforcement agencies. However, the website correctly notes that, unlike the Neighborhood Watch program, the AWW program only asks persons to report suspicious activities via a telephone number

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[240] Steven Flynn, "If Terrorists Hit Boston," *The Phoenix*, March 8, 2007, http://www.cfr.org/publication/12814/if_terrorists_hit_boston.html?breadcrumb=%2Fbios%2F3301 in Flynn's *The Edge of Disaster*, Random House Publishing, 2007.

[241] U.S. Coast Guard, "Coast Guard Auxiliary May Be for You," January 12, 2007, http://webapps.mlca.uscg.mil/LantareaNews/viewArticles.cfm?newsID=24630 . See also Coast Guard Auxiliary website at http://nws.cgaux.org/index.html.

[242] Ibid.

[243] United States Coast Guard, America's Waterway Watch, www.americaswaterwayswatch.org.

(persons seeing suspicious activities are advised to call 877-24WATCH); there is no requirement to formally join an organization, there are no meetings, membership cards or membership requirements, and participants do not become agents of the Coast Guard or any other law enforcement agency.[244]

Therefore, in its present configuration, the AWW program is little more than a 911 emergency phone system for boaters. Today, small notices are posted in most marinas and boat launch areas with the AWW phone number; and pamphlets are also usually available in most marinas, ferry terminals, dive shops, etc. Also, as noted above, the U.S. Coast Guard Auxiliary, whose services include training boaters on proper vessel operation, and performing vessel safety checks, has sought to include AWW training in their classes with the public, but the value of such training is questionable and has apparently had little success.

The shortfalls of the present AWW program's goal to inform the boating public were made very clear to the Commandant and Secretary Chertoff at the National Small Vessel Security Summit, when virtually all of the small boat operators in attendance stated they were not aware of the program at all; in fact, one of the items that the boaters brought up during the meeting was a request that the Coast Guard should create such a system so they as boaters could participate in the maritime security mission![245]

However, despite the program's lack of publicity, the AWW website itself does provide significant valuable information designed to assist persons operating on and near the water in reporting suspicious activities. For example, there are linked sections entitled "What is suspicious activity" where websites visitors are told what suspicious activity to look for, i.e.,

[244] U.S. Coast Guard, "Americas Waterway Watch."

[245] LCDR Matthew Wadleigh, an attendee at the Small Boat Summit, interviewed September 4, 2007.

> unusual operation of a small boat accompanied by video taping or photography; people taking still photographs or video from shore near a facility or vessel; seeing persons engaged in surveillance; persons asking unusual questions; seeing a new large hole in chain link fence around a facility; persons renting a boat saying they are going fishing but who bring no fishing equipment or bait, etc.[246]

The website also tells them to look for suspicious activity under bridges or near tunnels, near commercial facilities like chemical or petroleum plants; near military installations, and near ferry and cruise ships terminals. It advises them of what to look for in describing the suspicious person (attire, hair, color, age, body shape, etc.) to better assist law enforcement in identifying suspects.[247]

While there is certainly valuable information available on the website and in brochures, etc., boaters and the marine public have only rarely been aware of this information. The limited number of available Auxiliarists and the limited amount of time they have available to do realistic security training calls for a different approach.

B. THE NEIGHBORHOOD WATCH PROGRAM

The Neighborhood Watch program requirements are a good start for improving the boating and private maritime community's participation in the AWW program and in the nation's MDA. The National Crime Prevention Council, the sponsor of the Neighborhood Watch program, is a private non-profit organization that states on its website[248] that its primary mission is to enable people to create safer and more caring communities by addressing the causes of crime and violence and reducing the opportunities for crime to occur. The NCPC website contains ready-made training materials for interested communities to use when implementing their Neighborhood Watch programs.[249]

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[246] U.S. Coast Guard, "Americas Waterway Watch: What is Suspicious Activity?" http://www.americaswaterwaywatch.org/what_is.htm.

[247] U.S. Coast Guard, "Americas Waterway Watch: What 'Suspicious Activity' Should I Look For?" http://www.americaswaterwaywatch.org/what_look.htm.

[248] National Crime Prevention Council, "Neighborhood Watch," http://www.ncpc.org/topics/neighborhood-watch.

[249] Ibid.

What makes the Neighborhood Watch program different from the Coast Guard's AWW program is that the NCPC program calls for meetings, memberships, selecting leaders, canvassing of neighborhoods to recruit volunteers, working with local agencies, creating daily patrol groups, sponsoring clean ups of the area and other special events, etc. By these means, the volunteers get to know their neighbors and their community; they actually take action in patrolling their local areas, and therefore they are much better able to understand when something unusual may be going on in their community. The creation of such a modified Neighborhood Watch/AWW group in various port areas and in large marinas could significantly add to the nation's situational awareness and security. One of the boating public's leading publications also thinks that greater Coast Guard and boating public contact is warranted, as "at some point the boating public has to help with the problem of promoting safety and security on the water! . . . here is an area where we must all pull together for the common good. What is needed? How about meetings by the Coast Guard with various boating groups to lay out the problems and develop solutions?"[250]

However, the Coast Guard and the Coast Guard Auxiliary currently do not have sufficient members to coordinate all the Neighborhood-Watch type groups that could and should be established in the maritime arena, i.e., marina areas, boat launch areas, anchorage areas, etc. Therefore, until the membership levels of the Coast Guard and Auxiliary are increased, in order to begin to implement the revised AWW program immediately, active duty Coast Guard, reserve Coast Guard, Coast Guard Auxiliary members, and federal, state and local agency personnel need to first get involved in creating these Neighborhood Watch-type committees in the highest risk areas of the most important ports. The Coast Guard positions could be designated as full time "maritime community liaisons" at each local Sector office, whose sole duties are to recruit, train, establish and maintain ongoing and involved memberships at marinas, boat ramps, dive

[250] John Anthony, "Small Boat Threat?" *Boat/US Magazine*, May 2007, http://findarticles.com/p/articles/mi_m0BQK/is_/ai_n19154779.

shops, boat dealerships, etc., in their AOR, similar to the requirements for a Neighborhood Watch leader who follows a pre-determined checklist to keep the program up and running.[251]

In order for this to occur, the shortage of trained Coast Guard personnel needs to be addressed. The current membership in the active duty Coast Guard is approximately 41,000, although in the MTSA Act of 2002,[252] Congress authorized the Coast Guard to increase its membership up to a maximum of 45,500. The Coast Guard and Congress need to get together to immediately fund and train the several thousand additional Coast Guard members needed, so that the Coast Guard can allocate hundreds of its members to these maritime community liaison positions on a full-time basis, in addition to relieving personnel resource shortfalls throughout the Coast Guard. The small boat threat is real and it must be addressed by having full-time members concentrating on the coordination of and maintenance of these maritime watch groups made up of boat owners, marina owners, fishermen, etc. The members of the maritime community will likely be more inclined to report suspicious behavior because they will be more comfortable in reporting their sightings and suspicions to someone with whom they are already familiar.

C. OTHER POSSIBLE RECOMMENDATIONS/OPTIONS TO AID IN AWARENESS AND MDA

One option for increasing MDA and increasing the participation of the boating public would be to make the boaters and other maritime recreation participants more aware of, and encourage their participation in, the activities of the Area Maritime Security Committees. The Area Maritime Security Committees, which were also created by a section of the Maritime Transportation Security Act of 2002[253] to bring port

[251] National Crime Prevention Council, "Neighborhood Watch Checklist," www.ncpc.org/neighborhood-watch/checklist.

[252] MTSA Act of 2002, Sec. 503.

[253] Title 46 U.S. Code Chapter 70111(a)(2)(A)) and Title 33 Code of Federal Regulations Part 103.300-310, 2006 ed.

stakeholders together, are not reaching their full potential. As part 103.305 of Title 33 Code of Federal Regulations indicates, all of the members of the Committee must have an interest in the security of the area, and the regulations specifically call for

> membership from the federal, state, tribal and/or territorial governments, local public safety/crisis management/emergency response agencies, law enforcement and security agencies, maritime industry including labor, and other port stakeholders having special competence in maritime security or those stakeholders affected by security practices and policies.[254]

Why haven't arrangements been made for the regular boating community or marina public to become members or at least associate members of these committees? Such opportunities should be created. Are the boating public and maritime communities even aware of when the meetings take place? Without additional inclusive membership or associate member provisions, dive boat charterers, surfing groups, local lifeguards, even shell collectors, beachcombers and water taxi drivers, etc., will likely never be aware that they could be a part of the Coast Guard's security program.

Another recommendation is to be more proactive in having state registration departments provide information on the AWW program to their customers. Because every state and territory in the United States requires that its vessels be registered and that vessel registration numbers be posted on every vessel, Congress or the states themselves could be encouraged to create legislation requiring that states provide information on the Coast Guard's AWW program when they mail the annual registration certificates to the boat owners.[255] There could also be a requirement imposed to paste the AWW shield and phone number on the windshield of all vessels, just as most states require vessel registration information be posted on the vessel. The various states could also offer incentives for boaters to become members in the maritime neighborhood watch program, perhaps by lowering their annual registration fees for watch-group members.

Boaters and the maritime public could also be given financial incentives for providing information on suspicious activities that leads to an arrest, just as many land-

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[254] Title 33 Code of Federal Regulations part 103.305 (a)(1-7), 2006 ed.

[255] Rich Adams, "Land Urges Boaters to Keep Eyes Open," *Cheboygan Tribune*, March 16, 2007, http://www.terrilynnland.com/news.php.

side law enforcement organizations do via tip lines, etc. The federal government has begun a parallel program working towards the reporting of suspicious terrorism-related activities by the recent implementation of the National Suspicious Activities Report Initiative (NSARI).[256] The NSARI follows a program implemented by the Los Angeles Police Department, where local officers are trained to identify and report about sixty-five behaviors that could indicate terrorist preparations, and this reported activity is then vetted by LAPD intelligence experts.

A fourth option would be for the Coast Guard to require that an AIS-type position and identification beacon be placed onboard every small vessel in the United States, as is done in Singapore. These vessel operators could also be required to notify the Coast Guard whenever they were underway. While this would certainly give the Coast Guard additional MDA of the small boat community, this option is unrealistic and possibly unconstitutional, and should only be imposed in emergency situations or after an attack has occurred, as will be discussed in Chapter XI. It would be impossible for the Coast Guard to be able to track the simultaneous movement of millions of small vessels without an investment of billions of dollars in tracking equipment and the hiring of thousands of monitoring personnel. Additionally, freedom of movement without undue government interference is a hallmark of this nation's constitutional democracy.[257]

As discussed above, every day there are hundreds of thousands of boaters on the water, both recreationally and commercially. At any given time, thousands of civilians are underway, fishing, skiing, whale watching and diving in close proximity to U.S. coastlines and port complexes. There are also hundreds of law enforcement and environmental protection specialists, Army Corps of Engineers personnel, and other government professionals working in the maritime environment. The vast majority of these hundreds of thousands of boaters have communication equipment and/or cell

[256] Siobhan Gorman, "U.S. Seeks Terror Tips from States, Cities," *The Wall Street Journal*, June 13, 2008: A12.

[257] U.S. Supreme Court, "Kent v. Dulles."

phones at their immediate disposal. Therefore, there are hundreds of thousands of eyes on the water that, at any given time, could become part of the Coast Guard's and DHS's MDA programs. They are a vast and mostly untapped security resource.

The Coast Guard's Waterways Watch program should be reconfigured to match the organization and performance of the very successful Neighborhood Watch program, and state vessel registration departments should be used as an asset to provide security information to the boating public. Permanent waterways watch groups should be created and maintained by a professional staff dedicated to their continuation and education. American citizens have proven themselves to be generally eager to assist their government and each other in the improvement of security. The boating population, therefore, needs to be re-enthused, like the volunteer Shore Patrols performed by citizens during World War II.

By creating these volunteer groups and training members, another security asset similar to the Coast Guard Auxiliary but much larger in scope will come into existence. With official membership and training, the maritime public could be inspired to become a real part of national defense and of the security of their own property. With such an enthused and waterways watch-participating public, the United States would not only be safer from small boat terror attacks, but, as a side benefit, increased maritime surveillance would result in more criminal actions being stopped, including drug smuggling and illegal immigrant transportation.

And, of note, had India had such an effective Neighborhood Watch/AWW type program as proposed above, the Mumbai terrorists may have been stopped before they started their bloody assault. It was reported that a Mumbai fisherman had reported a tip to the Indian police that he had noticed persons (who later turned out to be part of the Mumbai terrorist group) who were using the Mumbai harbor to illegally import RDX, an explosive compound frequently used by the military. Unfortunately, the Indian police did

nothing.[258] Hopefully, with a fully implemented updated AWW program, persons reporting such suspicious incidents in the United States will have the assurance that their reports will be taken seriously and investigated.[259]

[258] Nic Robertson, "Mumbai Fisherman Warned Authorities about Bomb Smugglers," *CNN WIRE*, December 3, 2008, http://edition.cnn.com/2008/WORLD/asiapcf/12/03/india.attacks/index.html.

[259] Anthony Turner, "Americas Waterways Watch Program More Relevant Following Mumbai Attacks," *U.S. Coast Guard Auxiliary Press Release*, December 4, 2008, http://auxpa.org/weblog/blogs/blog1.php/2008/12/04/america-s-waterway-watch-program-more-re.

VIII. A PROPOSED NEW NATIONAL ARCHITECTURE FOR TACTICS AND PROCEDURES TO ADDRESS THE U.S. SMALL BOAT TERROR THREAT

As the then-Coast Guard Commandant wrote in 2004.

> [our] ability to protect America against threats emanating from the U.S. maritime domain requires unprecedented information, intelligence, and surveillance capabilities to anticipate where, when, and how adversaries may intend to harm us. Our maritime security missions, as well as all other Coast Guard missions, rely on situational awareness.[260]

To follow on with that imperative of increased situational awareness as related to the inshore maritime environment and the small boat threat, the Coast Guard and its state, local and industry partners/stakeholders must implement new tactics and uses of technologies to increase situational awareness of those areas where small boat attacks may be staged or originated. This remains true despite the Coast Guard's increased arming of its small boats to deter and/or defend against a small boat attack since 9/11, as it is this author's opinion that it would be very difficult to always successfully stop a small boat attack is already underway with the current Coast Guard weapon system.

As noted above, the situational awareness of the near shore maritime domain remains a problem beyond the current capacity of the Coast Guard to completely maintain without assistance from the maritime and boating public, but the Coast Guard itself, and its partners, must do more than just get the maritime community to be more involved.

While the maritime environment is certainly unique,

> small-boat threats resemble other terrorist plots and have a similar signature. They require recruiting, training and planning, surveillance and intelligence collection, operational security, logistical support, rehearsals, information operations, and execution. On the other hand, these threats have some unique characteristics and considerations. They can require unique attributes and knowledge such as maritime skills (e.g., sailing and

[260] U.S. Coast Guard Message, "ALCOAST 160/04," (emphasis added), http://www.offshoreoperators.com/VirtualDesktopFiles/USCG%20Records/USCG%20Maritime%20Domain%20Awareness%20R%20022159Z%20APR%2004.doc.

> scuba diving); familiarity with the target area (such as traffic patterns near a port facility); or explosives training. Unique environmental concerns that can affect the planning and conduct of maritime attacks include weather, tides, and other variables that could affect the dependability and reliability of the strike method.[261]

Several of these factors, especially training, surveillance, rehearsals, logistical support (placing of weapons on a vessel), can potentially be deterred by increased presence and surveillance activities by the Coast Guard and other agencies in areas where these small boat attacks may be staged and launched; i.e., at marinas, boat ramps, beaches/coves, etc. "Deterrence" is one of the strategic applications of the nations' goal of preventing the next terrorist attack, as outlined in the National Strategy for Homeland Security, and is defined as the "successful persuasion of offenders and potential offenders not to injure others, due to the knowledge of risks or the perception of failure."[262] The increased patrol and intelligence gathering activities described below will be even more effective in cooperation with suspicious activity reporting by members of the maritime community who have become familiar with the AWW program.

Recently, the Eleventh Coast Guard District, which covers all waters and ports within the State of California,[263] launched Operation Focused Lens to specifically address the small boat attack threat by identifying those areas where a small boat attack could be staged or originated, and then call for prioritizing law enforcement presence activities in those areas identified as higher risk areas for the staging of such an attack. The specific goal of the operation is to provide a focused and coordinated presence in areas where small boat attacks may be originated, staged and/or implemented. Then establishing an armed law enforcement presence in and about high risk marinas and boat ramps may deter terrorists from using those areas for the pre-planning and implementation of a small boat attack.

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[261] Carafano, "Small Boats, Big Worries."

[262] William V. Pelfrey, "The Cycle of Preparedness: Establishing a Framework to Prepare for Terrorist Threats," *Journal of Homeland Security and Emergency Management* 2, no. 1 (2005).

[263] U.S. Coast Guard, "Eleventh Coast Guard District." http://www.uscg.mil/D11/.

Another major goal of this operation is to coordinate activities with other government agencies, especially federal, state and local law enforcement agencies with a maritime nexus. This goal can be accomplished by explaining the goals for the operation and seeking the local agency's enthusiastic involvement in extending patrol and presence capabilities; it would also include the development of Memorandums of Understanding/Agreement (MOU/MOA) with local law enforcement agencies to augment the patrol and visit efforts of each other. This is an important step. Preventing terrorism is a new role for many public safety agencies. They are used to responding to daily emergencies, not preemptively stopping acts of war in their jurisdictions.[264]

The goals of the operation - the deterrence of terrorist/criminal activities by increased presence activities, increased cooperation and coordination of local agencies and the maritime community, and greater awareness of what activities may be suspicious - accomplish many of the goals outlined in the Office for Domestic Preparedness Guidelines for Homeland Security published in June 2003. The Preparedness Guidelines noted that a cultural shift, away from stove-piping, in addressing the homeland security threat will come about through a process when it: "[i]dentifies a prime mover (an organization, person, or event); identifies public and private stakeholders; establishes meetings of the stakeholders; and articulates the mission, goals, objectives in preventing terrorism, etc."[265]

The genesis for this operation began after my colleague in the District Eleven enforcement branch, LCDR Matthew Wadleigh, attended DHS's National Small Vessel Security Summit in June 2007 in Washington, DC. He returned and began looking for ways to implement tactics that might minimize the threat in California waters. Together, he and this author developed a planning order that, in addition to calling for increased presence and intelligence-gathering efforts by Coastguardsmen and local law enforcement, it also called for the increased use of Coast Guard Auxiliary members for maritime observation mission patrols in and around these areas, and the Auxiliary's

[264] Christopher Bellavita, "What is Preventing Homeland Security?" *Homeland Security Affairs* I, no. 1, (2005).

[265] U.S. Office of Domestic Preparedness, "The Office for Domestic Preparedness Guidelines for Homeland Security: Prevention and Deterrence," June 2003, www.ojp.usdoj.gov/odp/docs/ODPPrev1.pdf.

increased training of maritime community members on AWW in the identified marina and boat ramp areas. The Coast Guard local intelligence units in each port, called Field Intelligence Support Teams (FISTS) were tasked with increasing intelligence gathering efforts in and around these same prioritized high risk marina areas. Finally, the planning order called for certain areas to be called "Homeland Security Surveillance Areas," signified by posted signs, just as many neighborhoods are posted with signs identifying them as Neighborhood Watch areas, in order to act as a further deterrent.

However, before any specific presence activities could be implemented, we determined it was necessary to provide a means by which Sectors could identify which marinas, boat ramps and other areas that were a higher risk for use by a terrorist group as a staging area for attacks. LCDR Wadleigh and I developed a matrix that the local Sector offices could use to prioritize the hundreds of marinas and boat ramps in their areas of responsibility (AOR) in terms of the relative risk that a small boat attack operation would be staged at that facility. We named the resulting matrix the Staging Area Point of Origin matrix, with its unfortunate acronym of SAPOO. However, the SAPOO matrix has proven to be a valuable tool in the identification of higher risk/priority areas that require a higher lever of Coast Guard and other law enforcement presence.

The Sectors were tasked to individually visit all the marinas and boat ramps in their areas of responsibility, and score their risk level using the SAPOO matrix. The SAPOO Matrix includes various point-giving steps, so that a score for each marina, boat ramp, etc., could be generated that would identify that marina's risk for being used as a staging area for a terrorist group's small boat attack plan. The main planning and point-generating criteria used in the SAPOO matrix were:

- Size. Was the marina large, medium or small? Marinas containing 100+ berths were categorized as large marinas, while those with fewer than fifty berths were categorized as small marinas. In the matrix, more points were given to small marinas, because large marinas are likely to be much more populated, and therefore, any suspicious behavior was much more likely to be noticed at a larger, more heavily-trafficked marina than a smaller one.
- Isolation. How often was the marina or boat ramp area visited by the Coast Guard or other law enforcement agencies? We determined that a marina that is rarely if ever visited (either by boat or by landside patrol), is much more likely to be desirable to a terrorist, as the risk of detection is

significantly lower. Therefore, points in the matrix were assigned based on the frequency of law enforcement officer presence in those marinas and boat ramps.

- Security level. If a marina had a full-time professional security presence along with sufficient lighting and communication capabilities, fencing, etc., then the amount of points added to the matrix score were significantly less than those for a marina with little or no organic security.
- History. A history of criminal or suspicious activity at a marina was considered an important indicator of future activities of the same sort. This matrix quantifier was given additional weight compared to the other quantifiers.
- Information regarding specific threats. Any information related to a specific threat against a marina would multiply its matrix score and significantly raise its priority score. If for example, our intelligence agencies were able to identify such a specific threat, then the SAPOO matrix would exponentially increase the priority score for that marina, and would almost guarantee its being identified as a high priority marina.
- Other. Point-distributing portions of the SAPOO matrix also included the proximity of the marina or boat ramp area to a maritime critical infrastructure or other high value maritime assets, as close proximity to a desired target would likely be a goat of a small boat terrorist, and the level of AWW knowledge and/or training by persons located at that marina. This knowledge was considered an important factor, as marina-resident knowledge of how and where to report suspicious activity should make that marina less likely to be used by a terrorist as a staging area as he might feel that he was always being watched.

Internal security concerns prevent us from revealing the actual points and scoring equations for the SAPOO matrix in this thesis. After the matrix was completed and scores for each marina and boat ramp were generated, we left the determination of what score would cause a facility to be designated as "high priority" to the discretion of our Sector commanders. The main components of the SAPOO matrix are copied below in Figure 13.

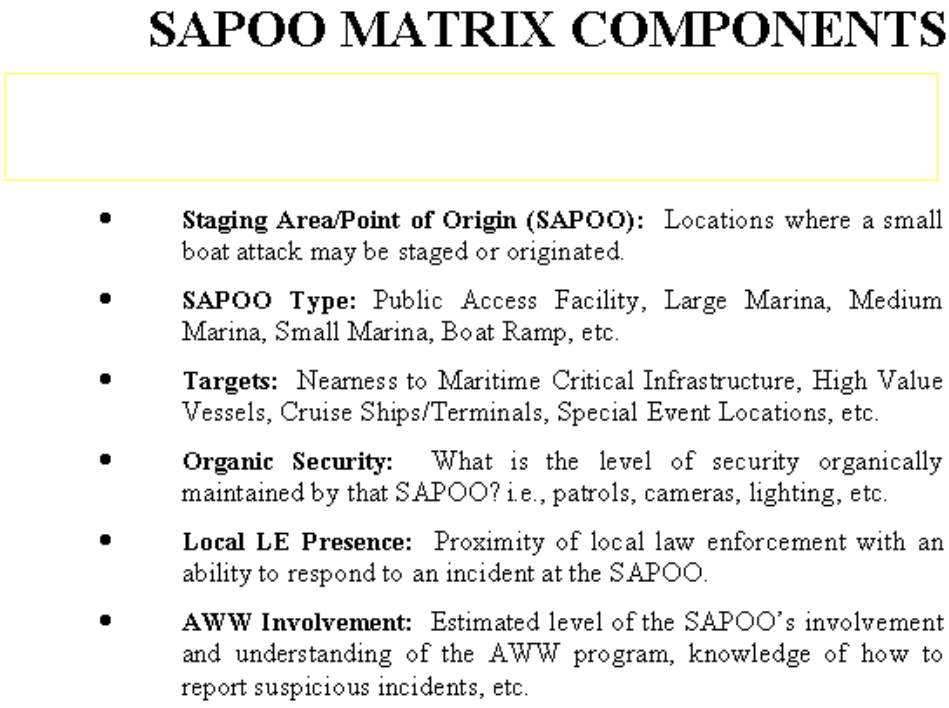
SAPOO MATRIX COMPONENTS
Staging Area/Point of Origin (SAPOO): Locations where a small boat attack may be staged or originated.
SAPOO Type: Public Access Facility, Large Marina, Medium Marina, Small Marina, Boat Ramp, etc.
Targets: Nearness to Maritime Critical Infrastructure, High Value Vessels, Cruise Ships/Terminals, Special Event Locations, etc.
Organic Security: What is the level of security organically maintained by that SAPOO? i.e., patrols, cameras, lighting, etc.
Local LE Presence: Proximity of local law enforcement with an ability to respond to an incident at the SAPOO.
AWW Involvement: Estimated level of the SAPOO's involvement and understanding of the AWW program, knowledge of how to report suspicious incidents, etc.

Figure 13. Components of the SAPOO Matrix

Once the marinas, boat ramps, etc., were prioritized by the Sector's SAPOO matrix according the risk of their being used by terrorists for staging or originating a small boat attack, the operation then directed that these high priority areas be visited/patrolled a certain number of required times per month. The local Coast Guard unit or local LE entity that was responsible for visiting the marina or other facility was directed to visit it for a duration of time sufficient to establish a deterrent presence, i.e., the visiting authorities could not just breeze by the marina and check it off as having been patrolled. The idea of sufficient deterrent presence was based upon the premise that the visiting agency personnel should stay there long enough to determine if something was out of the ordinary. For example, was the security guard at his entrance gate position and/or doing his patrols? Was the lighting still working properly? Was there an unusual amount of activity going on, etc. It is important to know what is normal so that one can thereby know what is not normal, and it has always been an edict of warfare that knowing

the enemy is crucial to success.[266] The operation also required that a certain number of boarding of underway small vessels should be boarded in the vicinity of the highest scoring marinas/boat ramps, in order to cause fear to a possible small boat terrorist that they could be randomly boarded at any time.

The patrolling/visiting officers were also encouraged to actually talk with the people at the facility, both to ask them if everything was normal, and to discuss the AWW program and how to report something suspicious. Coast Guard members and local law enforcement agents involved in the program were also instructed to always wear their personal radiation detectors ("rad pagers") when visiting and walking around the facilities, so that any unusual radiation emissions from a vessel or storage area might be detected, as missing and stolen radiological material has been reported every year for quite some time,[267] and this poses an additional threat to the United States. If a small boat terrorist wanted to create additional fear and panic with his small boat attack, a small amount of radiological material could be infused within the improvised explosive device to cause a dirty bomb scenario in the maritime environment.

Additionally, in the future it is intended that Coast Guard visiting officers will also receive behavioral detection training so they will be better able to detect if there is something unusual in the behavior of the persons they are interviewing or observing. Behavioral detection involves specifically training personnel to watch for body language and facial cues for signs of bad intentions.[268] Visiting/patrolling agents were also directed under to operation to conduct their required patrols at random times and with differing methods. Both nighttime and daytime patrols were encouraged, and visits could be

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[266] Sun Tzu, *The Art of War*, trans. Samuel Griffith (London: Oxford University Press, 1971), 84.

[267] United Nations News Centre, "Illicit Trafficking, Theft of Nuclear Materials a 'Persistent Problem' UN Agency Reports," September 12, 2007, http://www.un.org/apps/news/story.asp?NewsID=23774&Cr=nuclear&Cr1. More than 250 incidents involving unauthorized possession and related criminal activities, theft or loss of nuclear or other radioactive materials, and other activities such as unauthorized disposal of radioactive materials were reported to the UN International Atomic Energy Agency (IAEA) Illicit Trafficking Database (ITDB) last year, of which 150 occurred in 2006 and the rest mainly in 2005. 'Information reported to the ITDB shows a persistent problem with the illicit trafficking in nuclear and other radioactive materials, thefts, losses, and other unauthorized activities,' the latest ITDB report said.

[268] Kaitlin Dirrig "New Airport Agents Check for Danger in Fliers' Facial Expressions," *McClatchy Newspapers*, August 14, 2007, http://www.mcclatchydc.com/100/story/18923.html.

performed by patrol boats, by land via foot patrols, and even occasional patrols by helicopter. The randomness of time and method of these patrols is a tactic used to try and frustrate the terrorist who might be surveilling that marina for use as a possible staging point. We do not want the terrorist to know when we will or will not be there. Hopefully, the lack of a routine time and method of patrols would cause the terrorist to choose another location where he can be more confident of a lack of detection or give up the mission entirely.

Our Coast Guard Sector offices were also tasked by the operation to provide AWW training at a certain number of the higher risk marinas and boat ramps each month, usually using auxiliary members, and sector intelligence personnel were directed to do a certain number of intelligence gathering efforts at various high priority marinas each month. At the end of each month, our sector offices are required to report their percentage of compliance with the minimum activity requirements of the operation, identifying the number of patrols performed, the number of persons trained in AWW, the number of vessel boardings, and how many intelligence gathering efforts were implemented, etc. The sectors were also required to identify any gaps or shortfalls in their compliance with the minimum requirements and their plans for addressing those shortfalls in the future.

This combination of unexpected and random types and times of patrols and vessel boardings in areas rarely visited by law enforcement personnel, the increased awareness and participation in the neighborhood watch-like AWW by the persons living in and visiting these marinas and boat ramps, and the increased level of intelligence gathering by our local agents, will hopefully make it difficult for any terrorists to gain the anonymity required to stage a small boat attack anywhere in the Eleventh Coast Guard District, and hopefully in the future, this operation's techniques will be adopted throughout the United States to lessen the threat of a small boat attack anywhere in U.S. waters.

IX. USE OF TECHNOLOGY AGAINST THE SMALL BOAT TERROR THREAT

Technology can and should be combined with the improved AWW program and the implementation of anti-small boat terrorism-specific operations like Operation Focused Lens, to create a fully rounded and layered approach to the small boat terrorist threat in the maritime environment. Citizen involvement is not enough, and the Coast Guard and local law enforcement personnel simply cannot be everywhere in the vast maritime environment.

Defense Secretary Gates emphasized the importance of the inclusion of citizen involvement in the reporting of suspicious activity when he discussed the IED threat in Iraq. He stated that "the best way to defeat these weapons – indeed the only way to defeat them over the long run – is to get tips from locals about the networks and the emplacements, or, even better, to convince and empower them to prevent the terrorists from emplacing them in the first place."[269] The same holds true for vessel-borne improvised explosive devices, i.e., the small boat threat, in U.S. ports. It is essential to have the public involved in the observation and reporting of suspicious activity in order to be successful against this threat.

However, in that same article concerning the IED threat in Iraq, General Meigs stated that increased human intelligence/tips alone will not completely solve the IED threat. Technology must also be used to detect the IEDs.[270] Similarly, while the intelligence obtained from the boating public will greatly assist in the anti-small boat terror threat program, that involvement alone will not completely solve the small boat threats in U.S. waters nor will increased efforts on the part of the Coast Guard or other agencies be the complete answer. Technology is a crucial component to any planned total solution, especially considering Secretary Chertoff's stated concerns about small boats being used to bring weapons of mass destruction (WMDs) into the nation's

[269] Jeff Schogol, "[General] Meigs: IED Threat Coming under Control," *Mideast Stars and Stripes*, November 16, 2007, http://www.stripes.com/article.asp?section=104&article=50300.

[270] Wrightson, "Progress Made in Implementing Maritime Transportation Security Act."

ports.[271] A Hiroshima-sized nuclear bomb (15 kilotons) detonated in a port in a major city could kill 50,000 to one million people, result in property damage of $50 to $500 billion, losses in trade disruption of $100 billion to $200 billion, and indirect costs of $300 billion to $1.2 trillion.[272]

Relevant technologies applicable to the small boat threat are characterized for the provisions of this section into five general areas: (a) sensors to remotely detect the presence of WMD or bomb-making materials in small boats; (b) scanning technology to look inside small boats to detect unaccounted-for persons (MARFLIR); (c) tracking technology to monitor the movements of all vessels within a port area (includes AIS, VTS systems, radar), (d) technology that vessels themselves can use to detect/deter/prevent an attack once it is underway against their vessel, and (e) future developing technologies.

A. SENSORS TO DETECT THE PRESENCE OF RADIOLOGICAL MATERIAL ON SMALL BOATS

While DHS, through its Domestic Nuclear Detection Office (DNDO), has installed radiation detection equipment in most major U.S. ports,[273] the nation's anti-nuclear laboratories have helped to create easily-transportable devices that can detect the presence of radiological material within fifteen meters. The Lawrence Livermore Laboratory, in conjunction with Innovative Survivability Technologies, developed the Adaptable Radiation Area Monitor (ARAM), which has the ability to detect even small amounts of radiation as a moving vehicle or vessel passes by.[274] These sensors are now small enough and technologically advanced enough to be used on small boats at sea, as

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[271] Chertoff, "Remarks at the Small Boat Security Conference."

[272] Jonathan Medalia, "Terrorist Nuclear Attacks on Seaports: Threat and Response," *CRS Report to Congress*, January 24, 2005, http://www.fas.org/irp/crs/RS21293.pdf.

[273] Associated Press, "To Thwart Nuclear Terror, the U.S. Directs Trade Partners to Inspect 11 Million Cargo Containers," *International Herald Tribune*, August 23, 2007, http://www.iht.com/articles/ap/2007/08/23/america/NA-GEN-US-Port-Security.php.

[274] Katie Walter, "Detecting Radiation on the Move," *S&TR*, October 2005, https://www.llnl.gov/str/October05/Archer.html.

they are approximately 2' by 4' by 16" in size. These sensors need only be placed in a close proximity to a small boat to be able to detect whether there is radiological material on board.

For example, a Coast Guard 25-foot vessel could approach any other small boat and pull within ten yards or so to have a friendly discussion with the boat operators while at the same time scanning that vessel for the presence of radiological emissions, all without the boater ever being aware that he is being scanned. This would enable small boats to scan a much larger number of small boats than the normal procedure of stopping and randomly boarding a vessel with radiation pagers ("rad pagers"), which are also a very successful product. The Coast Guard is also working with the Homeland Security Department's Science and Technology Directorate to enhance and expand its capabilities in the detection and interdiction of chemical and/or biological agents.[275]

These portable radiation sensors can now not only show that there is a radiological emission, as the rad pagers do, but can identify the type of material at the same time. Once radiation data is detected, the ARAM sends its preliminary identification of the type of radioactive material to an adjacent laptop, and/or the information can be sent via a communication network to the nearest National Laboratory for review/identification by a radiological expert. This also shortens the normal Coast Guard boarding procedure, wherein if radiological emissions are discovered by the boarding party at sea, the boarding party must wait for another vessel to bring out the "level II" device, which analyzes the type of ions coming from the material to determine what it is. Only then, when the level II device identifies the material as something that may be sinister, does the call go out to Department of Energy experts for assistance. This proposed new sensing technology eliminates several of these steps.

This technology will allow one small boat to scan another small boat for the presence and identification of the radiological material, or the sensor can be incorporated into a stand-alone buoy that can sense and transmit data from passing small boats.

[275] Rear Admiral David Pekoske, "Border Security: Infrastructure, Technology, and the Human Element," Statement before the Committee on Homeland Security, Subcommittee on Border, Maritime, and Global Counterterrorism, House of Representatives, February 13, 2007, http://hsc.house.gov/SiteDocuments/20070213174133-70486.pdf.

Additionally, the ARAM can be network with other ARAMS to provide coverage of an entire area.[276] However, the buoy system will currently only be viable in areas of limited navigability, i.e., a narrow channel, because the detector's current limited range, as the vessels must be forced to navigate within fifteen yards of the buoy for it to be effective. Therefore, in a wider channel, a series of buoys or a combination of vessels and buoys would be required to scan every vessel passing by.

This same concept will be tested in an experiment by the Domestic Nuclear Detection Office's (DNDO)[277] "Maritime Pilot" program, which will be implemented in San Diego and the Seattle area.[278] The DNDO is an organization within DHS that is specifically tasked to prevent the unauthorized import, use, storage, and development of nuclear material that could be used against the United States. Its strategic objectives are the following.

- Develop the global nuclear detection and reporting architecture
- Develop, acquire, and support the domestic nuclear detection and reporting system
- Fully characterize detector system performance before deployment
- Establish situational awareness through information sharing and analysis
- Establish operation protocols to ensure detection leads to effective response
- Conduct a transformational research and development program
- Establish the National Technical Nuclear Forensics Center to provide planning, integration, and improvements to USG nuclear forensics capabilities[279]

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[276] Pekoske, "Border Security: Infrastructure, Technology, and the Human Element."

[277] U.S. Department of Homeland Security, "Domestic Nuclear Detection Office," http://www.dhs.gov/xabout/structure/editorial_0766.shtm. The Domestic Nuclear Detection Office, under the Homeland Security Department, is a jointly staffed office established April 15, 2005 to improve the nation's capability to detect and report unauthorized attempts to import, possess, store, develop, or transport nuclear or radiological material for use against the nation, and to further enhance this capability over time.

[278] U.S. Department of Homeland Security, "DHS Announces West Coast Maritime Radiation Detection Project," September 5, 2007, http://www.dhs.gov/xnews/releases/pr_1189012515699.shtm.

[279] U.S. Domestic Nuclear Detection Office, "Domestic Nuclear Detection Office: Strategic Objectives," http://www.dhs.gov/xabout/structure/editorial_0766.shtm.

The DNDO and the nation are realistically concerned about a radiological-type attack against the United States, based on the well-known desire of al-Qa'ida to obtain a weapon of mass destruction and the news that, in 2003, al-Qa'ida received some modicum of religious sanction for the use of WMD against the enemies of Islam by Saudi cleric Nassir bin Hamad al-Fahd, who issued an important and detailed fatwa on the permissibility of WMD in jihad. He stated that, since America had destroyed countless lands and killed millions of Muslims, responding in kind would be permitted.[280]

> The Maritime Pilot program will be implemented first in the Seattle area.
>
> > Dozens of law enforcement and emergency boats in one of the nation's largest and most congested waterways will be outfitted this fall with radiation detectors aimed at preventing terrorists from smuggling deadly weapons into the country. The first-of-its kind test in Washington's Puget Sound will try to find out whether components for making radioactive or nuclear bombs could be picked up if they're hidden on a small boat cruising into a busy harbor. 'We'll all suffer the consequences if we're not able to detect something,' says Coast Guard Capt. Chip Strangfeld, who is working on the project with the Homeland Security Department's Domestic Nuclear Detection Office (DNDO).[281]

It has not yet been determined what specific type of radiation detection equipment will be utilized during Maritime Pilot, but, significantly for Coast Guard and other agency purposes, the ARAM is now available in a fifteen-pound backpack.[282] This equipment, or something similar, will significantly help the shoreside intelligence gathering processes discussed above in previous chapters, as Coast Guard and law enforcement agency members may now visit marinas, boat ramps, and other areas of suspected use by small boat terrorists, and walk by hundreds of vessels and vehicles

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[280] James J. F. Forest, "Confronting the Threat of an Al Qaida WMD Attack," *Faithfreedom.org*, December 14, 2006, http://www.news.faithfreedom.org/index.php?name=News&file=article&sid=832.

[281] Mimi Hall, "U.S. Gears up to Detect Nuclear Material at Sea," *USA Today*, August 31, 2008, http://www.usatoday.com/news/nation/2008-08-28-boats_N.htm.

[282] Textron Defense Systems, "Adaptable Radiation Area Monitor: Protecting the Homeland from Nuclear Threats," www.textrondefense.com/aram.

parked by the marina every day, scanning them for radiological material. Minimal training is required, and the relative cost of each sensor is low: somewhere between $50-75,000 for each unit.[283]

The National Nuclear Security Administration (NNSA) is also partnering with DNDO to train local law enforcement officers to use advanced radiation detection methods: specifically, the remote detection of radiation from helicopters and airplanes. During a recent training event with the Chicago Police, NNSA Associate Administrator Joseph Krol stated "NNSA has years of experience in radiation detection using airborne detectors in our own aerial Measurements System helicopters and airplanes. We are looking forward to partnering with the Chicago police to better understand and use these systems in the most effective ways possible."[284]

The NNSA and DNDO will train police aviation units in radiation detection. The training is designed to prepare law enforcement officers to conduct a radiological surveillance mission using a radiation detection system mounted on a helicopter. This system detects gamma radiation and will help locate a potential dirty bomb or other radiological source.[285] Such equipment and training could possibly be made available to Coast Guard helicopters.

B. USE OF FORWARD LOOKING INFRARED RADAR (MARFLIR) TO LOCATE PERSONS HIDDEN IN SMALL BOATS

The Maritime Forward Looking Infrared Radar (MARFLIR) is already an invaluable tool for the detection of something abnormal at sea, especially the presence of hidden persons onboard a vessel. The MARFLIR can be land-based or vessel-based, and would remotely identity the heat signature of persons on board a vessel by remotely scanning through its hull. The MARFLIR system is an inverted stabilized 9-inch gimbal forward-looking infrared system designed specifically for the maritime environment. It

[283] Textron Defense Systems, "Adaptable Radiation Area Monitor: Protecting the Homeland from Nuclear Threats."

[284] U.S. National Nuclear Security Administration, "NNSA Provides Aerial Radiation Detection Training to Chicago PD," January 29, 2008, http://nnsa.energy.gov/news/1761.htm.

[285] Ibid.

can be mounted on a vessel's mast or wheelhouse. It has a 10x continuous zoom lens and a high-sensitivity infrared detector, laser range finder and an auto tracker.[286] This system has already been placed onboard some Coast Guard vessels and aircraft.[287]

The MARFLIR system would be especially helpful in the maritime border areas of the United States. The Coast Guard suspects that hundreds of illegal migrants enter the United States each month via small boats from Mexico. MARFLIR would help indicate which vessels along the maritime border should be boarded as possible migrant smugglers. There are hundreds of small boats underway every day in the maritime border area, and it is almost impossible to determine which vessels are smuggling illegals. The Coast Guard currently uses random boarding procedures in this area to deter smuggling, and has had very limited success in actually catching a vessel loaded with migrants.

With the use of the MARFLIR onboard its vessels, the Coast Guard small boats will be able to direct its scanning rays at numerous vessels to determine which boats have what appears to be several bodies crouched down or hidden within their lower levels. The Coast Guard would then be able to board those vessels instead of utilizing its current random "needle-in-the-haystack" approach. The MARFLIR sends an infrared signal and does not harm persons being scanned.[288]

MARFLIR was successfully used by Coast Guard patrol boats in OIF to warn of the dangers posed by vessels before they came into firing range, and both the U.S. Navy and Coast Guard have bought the MARFLIR Systems as their standard thermal imaging system for MSC ships and for craft down to a 28-foot length. The initial contract for sixty-one systems was first awarded in August 1999. The spherical two-axis stabilized

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[286] "Flir Systems Awarded $17 Million in U.S. Navy, Marie Corps Contracts," *Business Wire*, August 5, 1999, www.encyclopedia.com/doc/1g1-55359310.html.

[287] U.S. Coast Guard, "Maritime Forward Looking Infrared," http://cgweb.lant.uscg.mil/c2cen/marflir.htm.

[288] Ibid.

FLIR head can be mounted on a masthead or wheelhouse; it carries a third-generation InSb focal plane array (3- to 5-micron) detector and a 10x continuous zoom lens, as well as a laser rangefinder and an auto-tracker.[289]

The MARFLIR needs to become a more day-to-day instrument in the arsenal of the hundreds of Coast Guard small boats patrolling territorial waters, especially in the maritime border regions.

C. AIS/VESSEL TRACKING TECHNOLOGY

The AIS is a digital technology that allows a vessel to "squawk" its position, its name/ID, and its course of speed to a receiving unit. The national AIS system currently consists of terrestrial, sea, and space-based AIS Radio Frequency infrastructure capable of receiving AIS information from AIS-equipped vessels in U.S. ports, waterways and coastal zones. Data storage, processing and networking infrastructure complements the AIS RF infrastructure. The system receives (and will soon be able to send) AIS messages via a very high frequency (VHF) data link. AIS data is transported between system components over a wide-area network and diverse, remote site connectivity.[290] The goal of the AIS program is that AIS data be combined with other government intelligence and surveillance data to form a holistic, overarching view of maritime traffic within or near U.S. and territorial waters.[291] The basic premise of the above technological jargon just means that the Coast Guard can monitor the movement of vessels that have an AIS system on board. However, AIS is currently only required for vessels over 500 gross tons per the MTSA Act of 2002, but there is nothing that would prevent its required use on small boats.

There would be several benefits to requiring AIS equipment on all vessels. It would enhance maritime security by being used to monitor the normal movement of AIS-equipped vessels traffic in order to better identify anomalies, including the approach of a

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[289] Norman Friedman, "Countering Piracy on the High Seas," *Armada International*, April 1, 2001, http://www.thefreelibrary.com/Countering+Piracy+on+the+High+Seas-a074440931.

[290] U.S. Coast Guard Navigation Center, "Providing Vessel Identification, Tracking, and Information Exchange Capabilities to Support National Maritime Interests," www.navcen.uscg.gov/enav/ais/.

[291] U.S. Coast Guard, "Nationwide Automatic Identification System," www.uscg.mil/nais.

small boat to the vicinity of a high-value vessel or facility. There could also be a connection that would let a radar system identify which vessels in the area do not have an activated AIS system on board, which could serve as an early indicator of a possible non-U.S. vessel in the area. Additionally, the AIS system could help in search and rescue cases because it would identify which vessels are in the vicinity of a distressed vessel, and the AIS tracking data could also help with investigations as to the cause of a collision or other maritime casualty.

The Coast Guard could impose movement restrictions and/or AIS beacon requirements on all vessels.[292] The advantages to this Course of Action (COA) is that all vessel movements in the port could be monitored if they are equipped with the AIS systems and all suspicious small vessel tracks could be immediately countered. The Coast Guard Captains of the Port (COTP) could also order that boaters only get underway with COTP permission and only upon filing a report advising the Coast Guard of their planned movements. The disadvantage to this COA is that the constitutional right to freedom of travel[293] would be curtailed, and the Coast Guard does not have sufficient personnel to keep track of such a large number of small vessels and/or enforce the trip-reporting requirement. Hence, there would be little intelligence analysis and production based on the overwhelming movement data.

Use of the AIS system would overwhelm current Coast Guard abilities in busy ports because it is almost impossible to keep track of hundreds of small boats in a confined area such as the ports of San Diego and Los Angeles. However, requiring its use, even if the Coast Guard were not able to monitor all movements, would at least signal which vessels are compliant with U.S. requirements; the AIS tracking could also possibly show which vessel had recently crossed the border.

D. VESSEL "SELP-HELP" TECHNOLOGIES

The Coast Guard has also implemented the Integrated Anti-Swimmer System, which enables the Coast Guard to deter and/or disable an underwater or surface attack by

[292] Coast Guard, "What is AIS."

[293] U.S. Supreme Court, "Kent v. Dulles."

a swimmer.[294] The technology allows crewmembers on a vessel holding such equipment to speak clearly to a diver through an underwater speaker, warning him that he is entering a secure area and that action will be taken against him if he does not depart. This system also allows the operator to send stunning sound waves directly at the swimmer if he does not depart.

Another technology, the Long Range Acoustic Device (LRAD), allows the Coast Guard or equipment operator to issue verbal warnings remotely to a boater, via a directed/focused sound acoustic energy wave, that he is approaching a restricted area. The focused sound wave can send a clear voice warning/directing message to the moving boater from distances in excess of 500 yards.[295] The 33-inch dish emits a sound blast of up to 150 decibels, deafening and driving away would-be attackers. It proved remarkably effective in foiling a pirate attack on a British cruise ship off the Horn of Africa in 2005.[296] The Coast Guard and other agencies and industry personnel could also consider using visual and audible deterrence technologies to warn away boaters approaching a vessel or critical infrastructure. Visual deterrence could be provided by using technologies such as the Francis Searchlight, Francis FX,[297] which has 28 million candlepower, which could be integrated into a remote control operation that would illuminate small boats nearing a larger vessel or a facility. Audible alarms could be also integrated into the nation's security system by simply adding high-power sirens to remotely indicate when a vessel has entered into a security perimeter or into a fixed

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[294] U.S. Coast Guard, "Integrated Anti-Swimmer System," www.blog.wired.com/defense/files/1a_walker_upsec.pdf.

[295] Military and Aerospace Electronics, "More Services Using Nonlethal Long Range Acoustic Device, Says Maker," *Military and Aerospace Electronics*, August 26, 2004, http://mae.pennnet.com/display_article/211006/32/ARCHI/none/ONEWS/1/More-services-using-nonlethal-Long-Range-Acoustic-Device,-says-maker/.

[296] Sigelbaum, "Piracy Sparks High-Tech Defenses."

[297] Francis Searchlights, "Francis Searchlights Technical Light Data," *Francis Searchlights*, http://francis.co.uk/defence.htm.

security zone.[298] Floating barriers and fences, capable of stopping an advancing small boat before it hits a moored vessel, should also be a consideration.[299]

E. FUTURE POSSIBLE TECHNOLOGIES

Technologies continue to be developed that could remotely turn off a vehicle or vessel's engine, including high power microwave and electromagnetic pulse machines. In a similar vein, General Motors plans to equip 1.7 million of its 2009 model vehicles with a system that would allow pursuing officers to request that the engine be remotely turned off via satellite through the OnStar mobile communication system.[300] The United States and/or the Coast Guard could possibly require such a device in all future boat engines. Also, the Pentagon's non-lethal weapons division is currently looking for technologies that could "disable" aircraft, before they can take off from a runway—or block the plane from flying over a given city or stretch of land. In its request for proposals, the Joint Non-Lethal Weapons Directorate announced that they would like arms-makers to come up with a way to safely divert an aircraft in the air or stop and/or disable an aircraft on the ground. The Directorate wants "reversible effects" in which all the targeted aircraft can be quickly returned to an operational condition with minimal time to repair.[301] The Directorate's program managers did not state how the engineers might create such a kill switch for aircraft, but however it was to be done, the Joint Non-Lethal Weapons Directorate stated that they'd like to have a similar system to stop moving boats as well. The Directorate stated that "[t]hey're looking for a device that can, from 100 meters away, safely stop or significantly impede the movement of vessels up to 40 feet long, with minimal collateral damage."[302]

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[298] See, e.g., "Cruise Ship Virtual Security Shield," http://www.duostechnologies.com/downloadcenter/csvss.pdf.

[299] See, e.g., Whisprwave, "Maritime Homeland Defense and Force Protection Port Security Solutions," www.whisprwave.com/port.htm.

[300] Chris Woodyard, "Device Can Remotely Halt Auto Chases; GM Will Equip New Vehicles with a Device Allowing Police to Remotely Stop Them," *USA Today*, October 9, 2007, http://abcnews.go.com/Business/Autos/story?id=3706113.

[301] Noah Shachtman, "Pentagon Wants Kill Switch for Planes," *Wired.com*, July 26, 2008, http://blog.wired.com/defense/2008/06/the-pentagons-n.html.

[302] Ibid.

Real and virtual underwater fences are also being developed. Secure-Marine, a Netherlands-based company, is currently marketing "Secure-Ship" a high voltage fencing product similar to those use to enclose military bases. Wires strung from poles on deck emit 9000 volts, a non-lethal charge, but enough to deter intruders.[303] British defense firm QinetiQ has adapted its military underwater sonar system, Cerberus, to the private yacht market by advertising that its product creates an underwater perimeter around a vessel that, when broken, triggers an alert that would identify an underwater swimmer, scuba diver or vehicle coming in under the water."[304]

Remote control investigating or deterring vessels are already under development. Because most pirates overseas approach ships posing as fishermen, coast guard officials or harbor police, vessels that are suspicious of an oncoming craft could use the "Sentry" a jet ski-sized remote-controlled scout with cameras, also developed by QinetiQ, while a vessel sensing danger from an approaching vessel could deploy the "Protector" a 30-foot unmanned surface vessel developed by BAE Systems, Lockheed Martin, and an Israeli defense firm. The Protector can be equipped with a 7.62 mm remote-controlled machine gun, and can be used to investigate and intercept boats up to ten miles away.[305]

Remote explosives detection is a new field that should greatly expand in the future. A team at the University of Michigan led by Theodore Goodson has developed a material that can be incorporated into sensors which consists of large molecules arranged in a branching pattern. These molecules fluoresce when illuminated by infrared light. However, when the presence of trinitrotoluene (TNT) vapor – the bomb making material in many improvised explosive devices - is detected, the fluorescence of the material is quenched as the TNT molecules are caught in the sensor's branches.[306]

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[303] Sigelbaum, "Piracy Sparks High-Tech Defenses."

[304] Ibid.

[305] Ibid.

[306] Alan Cane, "Roadside Sensors to Detect Bombs," *The Financial Times*, April 11, 2008, http://www.ft.com/cms/s/0/f9b2e528-075f-11dd-b41e-0000779fd2ac.html

Wireless broadband connectivity in all ports is also a security tool that could be utilized to more easily allow communications between the port and nearby vessels. The port authority of Singapore recently announced the "first in the world" wireless broadband access system set up in cooperation its industry partners that will allow all vessels within fifteen kilometers of the Singapore coastline to communicate using wireless broadband internet technology.[307]

F. TECHNOLOGY CONCLUSION

The United States and the U.S. Coast Guard should immediately implement the proposed ARAM or other similar nuclear/radiological material detection program in conjunction with the increased use of MARFLIR technology, especially in the higher-threat maritime border regions. This increased use of technological capabilities, with the proposed greater involvement of the boating public in the nation's revised AWW/MDA/HUMINT program discussed above, should reduce the threat posed by small boats in local waters. This proposed program could be supplemented by the various other technologically advanced equipment discussed above, once they become more affordable and are proven effective.

[307] Maritime and Port Authority of Singapore, "First in the World: Wireless Mobile WIMAX Access in Singapore Seaport Now a Reality," June 3, 2008, http://www.mpa.gov.sg/infocentre/newsreleases/2008/nr080306.htm.

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X. THE REASON FOR SMALL BOAT ATTACK PREVENTION ACTIVITIES: THE POSSIBLE NEGATIVE GOVERNMENTAL REACTIONS THAT COULD FOLLOW THE FIRST SUCCESSFUL SMALL BOAT ATTACK IN U.S. WATERS

All of the above tactics, techniques, strategies and citizenship participation notwithstanding, the United States government and industry must have plans in place for dealing with the immediate aftermath of a successful small boat attack. The point of this chapter is not to frighten the boating public, but to make them a little angry about what a terrorist act in U.S. waters could do to their livelihoods and freedom of movement rights. It has been shown that, when people responds to a terror attack with anger instead of fear, they were much more likely to be optimistic, to believe that threats can be controlled, and to support more aggressive anti-terror policies.[308] It is to be hoped that, armed with the information in this chapter as to what impositions on their freedom could result, and angry at that possibility, members of the maritime community will increase their level of participation in AWW and become more involved in the daily maritime domain surveillance mission.

Although it would probably not result in the level of fear induced by the attacks on 9/11, a successful small boat attack against a cargo ship, cruise ship, military vessel, or a shoreside critical infrastructure or petroleum processing facility would have immediate psychological, economic, and strategic consequences that will prompt the President, DHS and Congress to call for immediate remedial actions. This is especially true because of the possibility of multiple similar attacks being planned and implemented after the first successful attack.

There is little doubt that the United States will have to impose movement and other restrictions on the boating public to prevent possible follow-on attacks. Some restrictions will be very temporary, while others may call for long-term implementation of additional security regulations on this community.

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308 "Study Reveals Impact of Fear, Anger on American Perception of Terrorism," *Carnegie Mellon News Periodical*, 2002, http://www.cmu.edu/cmnews/020510/020510_terrorism.html.

The immediate reaction will most likely be the imposition of Marsec 3 conditions,[309] which is a virtual shut-down of all port activity in the port where the attack occurred, if not nationwide. Additionally, the local Captains of the Port (COTP) will likely issue COTP orders directing that all vessels underway in the port area return immediately and/or depart the area and that no vessel, large or small, will be permitted to move without the express consent of the COTP. There are severe financial and/or criminal penalties outlined in 33 C.F.R. 6.18-1 and 50 U.S.C. 192 associated with noncompliance with a COTP order.[310] After the order forbidding movement is signed, any vessels found moving in a port will be immediately detected and confronted.

Also, immediately after such a first attack, there will be great pressure to implement severe movement restrictions on all small boats, and the Coast Guard and other federal/state/local agencies will need to be ready for the implementation of such a plan. One possible regulatory implementation would be a requirement for tracking devices, similar to the AIS system discussed in previous chapters, to be placed on all small boats in the United States. If this requirement is imposed by Congress and/or the President, the United States and the Coast Guard should review the success of the Singapore small vessel tracking system,[311] which already tracks all vessels moving in the harbor, for possible implementation here. Like Singapore, the United States will probably have to provide funding for the placement of these movement-tracking beacons on the boats in order to ensure that even the poorest boat operator will be able to comply with the regulations. Concurrent with this and other possible new requirements discussed

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[309] Title 33, Code of Federal Regulations, Part 101.205, 2006 ed.

[310] Title 33, Code of Federal Regulations, Part 6.18-1, 2006 ed. Section 2, Title II of the Magnuson Act of June 15, 1917, as amended, 50 U.S.C. 192, provides as follows: "If any owner, agent, master, officer, or person in charge, or any member of the crew of any such vessel fails to comply with any regulation or rule issued or order given under the provisions of this title, or obstructs or interferes with the exercise of any power conferred by this title, the vessel, together with her tackle, apparel, furniture, and equipment, shall be subject to seizure and forfeiture to the United States in the same manner as merchandise is forfeited for violation of the customs revenue laws; and the person guilty of such failure, obstruction, or interference shall be punished by imprisonment for not more than ten years and may, in the discretion of the court, be fined not more than $10,000. (a) If any other person knowingly fails to comply with any regulation or rule issued or order given under the provisions of this title, or knowingly obstructs or interferes with the exercise of any power conferred by this title, he shall be punished by imprisonment for not more than ten years and may, at the discretion of the court, be fined not more than $10,000."

[311] Singapore Window, "Singapore Beefs up Maritime Security, Installs Transponders on Small Vessels," *Agencie French Presse* July 1, 2005, http://www.singapore-window.org/sw05/050701a1.htm.

below, Coast Guard personnel numbers will have to be significantly increased in order to oversee this new tracking regime and other maritime security responsibilities, or Congress will have to temporarily relieve the Coast Guard of responsibility for other missions (environmental, living marine resources, vessel safety, etc.) in order to concentrate its efforts on the tracking of near shore threats.

As noted in the DHS's Report on the National Small Vessel Security Summit[312] one of the regulatory items being proposed concerning the small vessel threat, is a requirement that all boat operators carry identification whenever they are operating a vessel in U.S. waters. Undoubtedly, that will become a minimum requirement after the first successful attack, but there are likely to be even more requirements placed on boaters.

DHS and the Coast Guard have at times advocated legislation that would give the federal government the power to require safety classes and a completion certificate for all boaters, and current Commandant Thad Allen has supported the idea that all states should require licenses for all boaters in their states.[313] Currently, only two states, Alabama and Connecticut, require licenses for boat operators.[314] Some type of nationwide boat operating license requirement will also likely become law after the first successful attack. The federal and/or all the state governments could also be pressured to legislate automatic background checks for all persons desiring to get a license or to purchase a vessel, because, like the background checks required for guns and rifles, a small boat could be considered a dangerous weapon in the hands of the wrong person after the first successful attack.

The Coast Guard or other law enforcement agencies could then have a database of all persons licensed and approved to operate and own a vessel, and will be able to run boat operators' names through the database to confirm that they have met all of the state requirements. While not acting as a guarantee against any small boat terror attack, the

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[312] DHS, "National Small Vessel Security Summit Report," 86.

[313] Patrik Jonsson and Ron Scherer, "Got a Boat? You May Need a License," *Christian Science Monitor*, August 1, 2007, http://www.csmonitor.com/2007/0801/p03s03-ussc.html.

[314] Ibid.

boat licensing requirement will at least impose another hurdle the potential small boat-operating terrorist will have to consider if he wants to operate a boat in U.S. waters (to perform dry runs of the attack, testing of the vessel engines/maneuverability, etc.) without arousing suspicion.

The Coast Guard and DHS will also almost assuredly create new and significantly larger regulatory restricted movement areas in and around port areas that would forbid entry to small boats. Security zones, safety zones, restricted areas, etc., are already in effect in hundreds of areas throughout the United States to keep vessels away from maritime critical infrastructures, piers, oil refineries, etc.[315]

There is also an automatic security zone restricting the movement of any vessel within 500 yards of any Navy vessel, i.e., the "Naval Vessel Protection Zone" (NVPZ), where the Coast Guard is authorized by 14 U.S.C. 91 to control the anchorage and movement of a vessel operating in the vicinity of a U.S. naval vessel.[316] A NVPZ is a 500-yard regulated area of water surrounding a large U.S. naval vessel, providing for the safety or security of the vessel.[317] Section 91 of 14 U.S.C. also authorizes the Secretaries of DHS and the Navy, to control the anchorage and movement of any vessel in the ``navigable waters" of the United States to ensure the safety or security of any U.S. naval vessel in those waters.

After the first successful domestic small boat attack, the COTPs will likely impose NVPZ-like security zones around all large vessels operating in U.S. waters, and create many additional security zones around and near maritime critical infrastructures. These new regulations will seriously limit the freedom of movement by small boats near port facilities and high value vessels, and could mimic the strict restriction on vessel movements within identified shipping lanes as currently used by Israel, noted in Figures 15 and 16.

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[315] Title 33, Code of Federal Regulations, Parts 6, 165, and 334, 2006 ed.

[316] Title 33, Code of Federal Regulations, Part 165, 2006 ed. (The Coast Guard has implemented the provisions of 14 U.S.C. 91 by establishing and enforcing Naval Vessel Protection Zones (NVPZ), in 33 CFR part 165, subpart G.)

[317] Title 33, Code of Federal Regulations part 165.2015, 2006 ed.

As noted above, there are penalties for the violation of these regulated security and safety zones, including both civil and criminal elements, and violations of security zones and required movement lanes could be strictly enforced, including with deadly force. For example, a boater named Mike Kenealy suddenly found himself facing a Coast Guard small boat with blue lights and sirens flashing, with a machine gun pointed in his direction, and a Coast Guard helicopter hovering overhead when he inadvertently cruised into a security zone around a natural gas tanker being escorted by the Coast Guard in Boston Harbor.[318] The Coast Guard enforces security zones around natural gas carrying tankers around, in part, out of concern that a boat bomb attack could cause the cargo to detonate and devastate downtown Boston. Such fear prompted the mayor of Boston, Thomas Menino to ask the COTP to ban these ships from Boston Harbor. Although the Captain of the Port refused, he did implement stringent restrictions around these vessels while they are moving in the harbor, and those restrictions were what snared Mr. Kenealy.[319] "Our greatest fear is the boater who gets into trouble (in a security zone) doesn't even know what he's doing wrong, prompting a deadly response by harbor security," said Captain Scott Evans, the Coast Guard's Chief of Boating Safety.[320]

[318] Dick Thompson, "Communications Gap," *Boat/US Magazine*, July 2004, http://findarticles.com/p/articles/mi_m0BQK/is_/ai_n6117632.

[319] Ibid.

[320] Ibid.

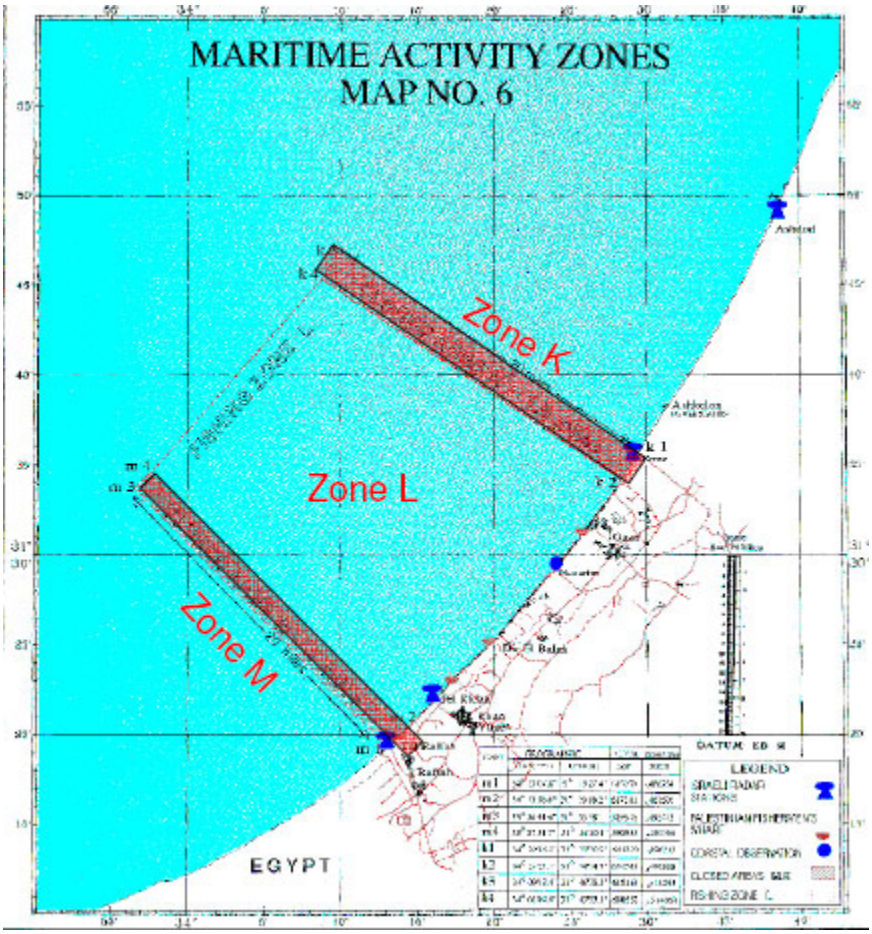

Figure 14. Maritime Zones off Israel's Coast. Zones K and M are for Palestinian Fishermen; Zone L is for Israel Navy and Permitted Vessels Only.[321]

[321] Lorenz, "The Maritime Threat to Israel," Appendix I.

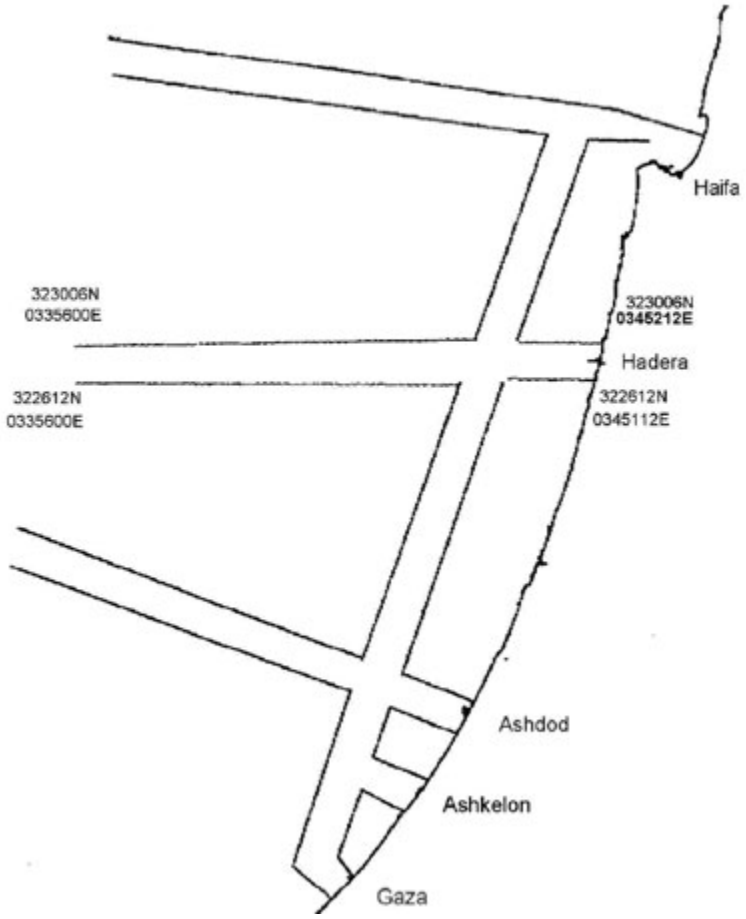

Figure 15. Shipping Corridors for Large Vessels Approaching and Departing Israel. Strict Lane Compliance is Required.[322]

The first and subsequent successful small boat attacks may also create a call for equipping arriving vessels with anti-small boat attack technologies discussed above, including loud hailers, high pressure hoses, remote electronic shut-down technology, etc., and may also create an impetus in the shipping industry and Congress to increase the ability of vessel hulls to withstand a small boat attack.

After the large oil spill caused by the M/V Exxon Valdez in 1989, Congress passed the federal Oil Pollution Act of 1990 (OPA 1990);[323] among other mandates, it required that all new vessels constructed after 1990 that intended to operate in U.S.

[322] Lorenz, "The Maritime Threat to Israel," Appendix III.

[323] The Oil Pollution Act of 1990, Title 33 U.S. Code Section 2701 et seq., 2006 ed.

waters had to be constructed with double hulls to better contain oil spills in the event of a collision, grounding, etc.[324] Similarly, after a successful small boat attack, Congress could mandate that all vessels entering U.S. waters be required to have double plating or other explosive-resistant materials on their hulls to better withstand a small boat attack.

The maritime industry itself must also have contingency plans for actions to be taken after the first successful small boat attack. For example, the cruise ship industry could be devastated after a successful small boat attack anywhere in the world. This industry will need to recapture the confidence of the cruising public in order to resume operations and attract customers. Perhaps the cruise industry may have to hire armed security vessels to maintain a twenty-four hour maritime security presence around their vessels as they move about the oceans and while anchored/moored in ports. The same self defense responsibilities will probably also be applied to all vessels, including petroleum tankers and vessels carrying thousands of cargo containers, before they are permitted to enter U.S. waters.

Finally, new international conventions will probably be supported by the United States to, among other things, allow nations to "temporarily" enter the territorial waters of other nearby nations, when necessary, as part of the world's attempt to rid the globe of terrorists. New international agreements for information and intelligence sharing would also be implemented, both between nations and between industry and its respective governments. In ways similar to the international law regime accepted by all nations, that pirates are a scourge and are at war with the entire world, nations must work together, both militarily and via their intelligence agencies, to identify, disrupt, deter and/or destroy maritime terrorists, the world's modern day dread pirate scourge.

[324] "Oil Pollution Act" (OPA 90, Section 4115 (c)(2) states that tank vessels shall be equipped with a double hull or "with a double containment system determined by the Secretary of Transportation to be as effective as a double hull for the prevention of a discharge of oil."

XI. CONCLUSION

The ongoing and real threat of terrorism from small vessels already present within U.S. territorial waters needs to be better considered and addressed by DHS, the Coast Guard, the Department of Defense, and all other federal, state and local law agencies with a nexus to the U.S.'s territorial seas and the maritime industry. The proven ability of maritime terrorists to use small boats to attack large vessels and shore-based infrastructures at little cost with devastating results, calls for new and increased cooperation between all agencies and the public to detect/deter such events before they happen. Recent successes by pirates using small boats to take over large vessels off Somalia and the Middle East, the increasingly successful use of submarine-like small vessels by drug smuggling organizations, and the use of small boats to bring the Mumbai terrorists ashore in India, should raise the nation's anxiety concerning the possibility of a successful attack small boat attack in U.S. waters.

To counteract this threat, the nation's maritime community must by persuaded to become more involved in day-to-day participation in the nation's MDA programs. To accomplish this, the Coast Guard must become more involved in maintaining and supporting maritime community involvement groups, following the successful Neighborhood-Watch programs in our nation's cities. There must be frequent and meaningful contact between the Coast Guard and the neighborhood watch-like organizations established under this theses' proposed changes to the AWW program.

Further, the Coast Guard itself must also implement new tactics to counteract the threat. The vulnerability assessment, intelligence gathering and patrol tactics outlined in Operation Focused Lens should be implemented nationwide. The best way to prevent or deter a small boat attack threat in U.S. waters it to detect it before it begins. By examining all the marinas, boat ramps, and other boat-launching areas in the United States, and ranking them as to the probability of their being used as a staging area/point-of-origin for a small boat terrorist attack, the Coast Guard and other local law enforcement agencies will be able to direct their efforts in those locations with the highest probability of being used as a staging area for such attacks. Once the high risk areas have

been identified and prioritized, the Coast Guard and other government agencies will visit/patrol those areas on a much more frequent but random basis in addition to providing training on the AWW program to persons present at those marinas. Finally, Coast Guard and other agencies must increase their intelligence-gathering efforts at these higher-priority marinas and boat ramps to possibly detect the terrorist's planning cycle.

It is also an essential part of the anti-small boat terror planning that new small boat detection and deterrent technologies be implemented as they prove their worthiness and their risk-reduction benefits justify their costs. These detection efforts should be both overt and covert to act as both a deterrent and detection asset. Finally, the Coast Guard and all other agencies, industry and the public need to have contingency plans that can be implemented immediately after the first successful attack to minimize the probability of a quick subsequent attack elsewhere, to plan for recovery and life saving efforts, and to lay long-term plans for the eradication of the small boat terror threat from U.S. waters.

The above noted reviews of worldwide maritime terrorism, individual lessons learned from other nations' successful responses to the maritime threat, and the increased success of pirates and drug smugglers, in coordination with the goals outlined in the DHS Small Vessel Security Strategy, led to this author's recommendations, which are summarized as:

- the local U.S. maritime community members must be persuaded as to the importance of the reporting of their observations to the nation's MDA, and the U.S. Coast Guard must have a more hands-on and involved program, similar to the land-based Neighborhood Watch program to keep these member actively involved;
- the Coast Guard and other local law enforcement agencies must discover, investigate and prioritize those areas that might be used for staging a small boat attack and increase their presence and intelligence-gathering efforts in those locations;
- the use of up-to-date detection technology must be a part of any small boat attack prevention plan; and
- the U.S. must be prepared with a plan to respond to the successful small boat attack, including recovery and search and rescue operations, along with possible increased regulations and restrictions on the maritime community to better prevent re-occurrences of a successful attack.

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